A KEY TO POTTERY AND GLASS

A KEY TO POTTERY AND GLASS

BY

BERNARD RACKHAM, C.B., F.S.A.

Formerly Keeper of the Department of Ceramics
Victoria and Albert Museum

BLACKIE & SON LIMITED
LONDON AND GLASGOW

BLACKIE & SON LIMITED
50 Old Bailey, London
17 Stanhope Street, Glasgow
BLACKIE & SON (INDIA) LIMITED
Warwick House, Fort Street, Bombay
BLACKIE & SON (CANADA) LIMITED
Toronto

First published 1940

Printed in Great Britain by Blackie & Son, Ltd., Glasgow

PREFACE

IN conformity with the plan of the series to which it belongs, this book is not meant for the expert. It is addressed rather to those with little or no knowledge of the subject whose curiosity stirs in them a wish to understand something of the nature and antecedents of articles they use in daily life, particularly of articles made in two kinds of material of such beauty and attractiveness as may and should belong to pottery and glass. Most of its readers are likely to be interested chiefly in English wares; the book is accordingly designed to show how the china and glass, efficient for their purpose and perfect in workmanship, which we expect as a matter of course to be able to obtain for domestic use, are the culmination of many strains of development traceable through long ages to the most various and widely distant origins. So short a volume is not intended to serve, like an encyclopædia, as a work of reference; names of craftsmen, dates, and minor technical details have accordingly been to a large extent left out as an encumbrance in what it is hoped will be found a readable general survey. Those whose interest the book succeeds in stimulating may be referred, amongst other works, to the handbooks on special aspects of the two subjects published at moderate prices by the two great national museums. These handbooks will be found to contain adequate bibliographies of the authorities on which they are based and from which a large part of the facts recorded in this short volume are also derived. I should like to

record my indebtedness in particular, as regards the earlier section of the book, to the writings of my friend, Mr. R. L. Hobson, lately of the British Museum; I have found very useful also a little book by Mr. H. S. Harrison with the modest title *Pots and Pans* (Howe, London, 1928), which can be recommended with confidence to those whose interest is less in the history of pottery than in the manner in which it is made. For glass I have found quite invaluable a work unfortunately not available in translation, *Das Glas* (2nd ed., 1922), by Prof. Robert Schmidt, a handbook published by the Schlossmuseum, Berlin; English glass, however, is there inadequately treated, and for this branch of the subject, in common with all students, I owe very much to the tireless and painstaking researches of another friend, Mr. Francis Buckley. For statements based on recent and, in some cases, not readily accessible publications, I have thought it well to give references in the footnotes.

Finally, I may point out that the all-embracing collections of the British and Victoria and Albert Museums provide unsurpassed material in illustration of my twofold subject; the specimens exhibited in the Fitzwilliam Museum, Cambridge, and the Royal Scottish Museum, Edinburgh, are also fairly adequate for the purpose. I have to thank the Directors of these museums and of the London Museum, as well as Mr. D. Kelekian and Mrs. L. G. Drummond, for kind permission to reproduce photographs of objects in their several collections. Messrs. Rydbeck & Norström kindly supplied the photograph reproduced on Plate XVI, D.

BERNARD RACKHAM.

NOTE

It is convenient to point out here that detailed descriptions of the objects reproduced in the plates will be found in the list on pp. ix-xii.

CONTENTS

PART ONE—POTTERY

PART TWO—GLASS

LIST OF PLATES

PART I — POTTERY

CHAPTER I

Origins

THE art of the potter is one of the oldest of human handicrafts. How pottery was invented will doubtless never be known, nor when and where the earliest clay pots were made, for they were certainly far too perishable to have survived, like stone implements, till our own time. We may guess that the idea of using pots as containers occurred to some man or, more likely, woman—the potters of primitive races are women—who noticed how rainwater gathered in foot or hoof prints in clayey ground and how clay hardened with the heat of the sun. Rude vessels shaped in plastic clay with the hands were doubtless hardened by drying in the sun long before the much more efficient method of baking with fire was thought of. The shaping of pottery was enormously facilitated by the invention of the potter's wheel, which consists essentially of a small round table on a supporting shaft passing through a larger flywheel; the flywheel may be set in motion by the feet or the disengaged hand of the potter, or as in modern times by a band connecting it with a wheel turned by an assistant or by mechanical power in various forms. Whatever the motive power, the principle remains the same, and by the process known as "throwing" on the wheel a pot can be given a

true circular shape far more quickly and easily than by laboriously fashioning the clay with the hands unaided. Other and, in some respects, easier ways of shaping clay vessels, such as moulding and casting, of which more will be said later, were devised as time went on, but none gives such satisfactory results as "throwing". The fact remains, however, that pots of great beauty and refinement of shape were made in early times—and continue to be made by primitive races in Africa and America—entirely without mechanical aid, unless we class as a machine what is called the "slow wheel", a flat slab of stone or the base of a broken pot on which the clay could be slowly revolved with one hand, whilst being shaped with the other. Another laborious method, still practised by American Indians and capable in their skilful hands of giving admirable results, is that of building up the walls of a pot by coiling and interlocking snake-like rolls or ropes of clay and afterwards smoothing out the interstices.

Pottery may be divided on a technical basis into three main classes—earthenware, stoneware and porcelain, evolved in that chronological sequence; there are no sharp dividing lines between the three classes, which tend to merge into one another, so that intermediate types have appeared from time to time. Roughly speaking, earthenware and stoneware are made of clay alone, or perhaps with a smaller or greater admixture of silica in the form of sand or ground flints, differing only in the degree of temperature to which they are fired; stoneware is earthenware fired until the particles of clay are fused into a homogeneous mass like stone which cannot be powdered by scraping with a steel blade. Porcelain is the name given to translucent white pottery made by combining clay with various other substances, and is itself divisible according to the nature of its constituents into several classes, of which more will be said when porcelain comes on the scene

in the historical sequence. These various types, culminating in the fine white "china" which we expect nowadays almost as a matter of course for use at table, are the outcome of a series of improvements discovered at intervals over a long range of time. One of these is, as we have seen, the potter's wheel; glaze is another, which, with many more, will be dealt with in its place as the narrative proceeds.

The oldest surviving pottery can be dated back to the Neolithic period of human culture. It has to be borne in mind, however, that the Stone Age lasted in some parts of the world down to a much more recent time than in others; so that when we speak of the Neolithic pottery of Egypt or China we are concerned with wares much older than the Neolithic pottery of northern and western Europe, whilst in America Neolithic pottery has endured virtually till modern times.

The earliest wares dug up out of graves in Great Britain and elsewhere in north-western Europe date from about the second half of the third millennium before Christ; they exhibit the characteristics to be expected of pottery in a primitive stage. The material is a friable drab or reddish earthenware; the round-bottomed form which comes most naturally in wares made entirely by hand was succeeded by beakers and jars flattened at the base so that they can stand upright without support. Decoration of some sort is almost constant on the wares found in graves, but was not necessarily so general on those made for ordinary use. It is of the kind which inevitably suggests itself in working soft material; it consists, that is, of rectilinear motives—horizontal lines, zigzags, bands or straight-sided compartments filled with trellis-pattern—scratched into the surface with the finger-nail or with a stick, or very commonly in broken dotted lines produced either by pressing into the clay a twisted cord or with a notched curved slip or disc of wood or bone

(like a coarsely milled coin). The typical shapes found in the British Isles are the beaker, more or less bell-shaped, the "food-vessel" (fig. 1), and the cinerary urn, the last sometimes as much as thirty inches high, with sides expanding to a high shoulder and short contracted neck in some cases overhung by inward-slanting eaves as the uppermost member. An interesting and, from a decorative point of view, a very effective feature of the "food-vessel" is often a deep groove

Fig. 1.—Early Bronze Age "food-vessel" (British Museum)

interrupted at intervals by an ear or stop which may be pierced to form a loop. Taken as a whole the Stone Age and Bronze Age pottery of the north, though coarse in material and decorated only with the most obvious of patterns by the simplest of methods, proves in its makers a highly developed sense for beauty of form and fitness in decoration.

It is not surprising that refinement makes its appearance first in the lands of the Nile and the Euphrates, in which civilization was born. We have no evidence to suggest how early pottery may first have been made in Egypt; before Egyptian history begins, however, with the first dynasty of kings, towards the end of the

fourth millennium B.C. we find pottery being made which, although still shaped by hand unaided (the wheel being a later invention), shows by its great refinement of shape and finish that it must have had a long ancestry tracing back to rude, primitive types now lost. This pre-dynastic pottery is of two classes. In one there is no decoration, but the surface is hard and burnished smooth; it is either bright red all over, from a coating of hæmatite (iron ore), or in some cases black, or black in the upper part only, this change of colour having been effected, it is supposed, by partially burying

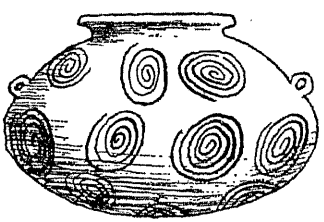


Fig. 2.—Pre-dynastic Egyptian pot

the pot during firing in the ashes of the furnace so that, in the portion thus covered, the full oxidation which produces the red colour could not take place. The shapes of this plain red or black ware are of extraordinary grace and beauty; a slender oviform with flat base and plain truncation at the mouth is typical. The wares of the second class are distinguished by their decoration, either linear, derived from basketwork, as in certain black wares with scratched designs with white clay rubbed into them, or representational, painted either in white on a red ground or in red on buff; amongst these latter designs we find crudely drawn men, animals and boats, but of greater æsthetic merit is a more or less regular diaper of shell-like coils harmonizing admirably with the often distinguished shapes of the vessels (fig. 2). An egg-shaped jar with

flat base and another of depressed globular form rounded at the bottom, both provided with two small pierced handles like a tubular bead, set horizontally, just above the greatest diameter, are forms common to both types of decorated ware; they have their precise analogies in the contemporary vessels made by drilling out of several varieties of stone—the buff earthenware jars are indeed sometimes mottled with red to imitate the markings of breccia. In early dynastic times, as the result of increased skill in making vases of stone and perhaps also of the introduction of metal-working, there was a falling off in the quality of Egyptian pottery, but this was only temporary, and unglazed earthenware of good form continued to be made under the rule of later dynasties. It is, however, to the invention of glaze, in other words, of glass (compare p. 126), that Egypt owes its outstanding position in the history of pottery. This development was a very important step in advance, as a glaze if rightly constituted greatly increases the usefulness of pottery as a container for liquids by making it non-porous and easy to keep clean. It is necessary only to reflect on the inconvenience that would be caused in modern life if instead of well-glazed china we had nothing better for use than earthenware like that of flower-pots and chimney-pots.

By the introduction of glaze and subsequent developments Ancient Egypt has its place at the head of the stream which we shall have to follow in the chapter on Near-Eastern pottery. Here we can only mention briefly other classes of unglazed earthenware made in pre-Christian times in the Near East. Many such types belong to the civilizations of the lower Euphrates valley of which recent excavations have so greatly extended our knowledge. Most remarkable of these are the buff earthenware jars and beakers attributed to the fourth millennium before Christ, found in the lowest stratum of the ruins of Susa, in Elam, the land

which, through the conquest of its early inhabitants by Aryan invaders from the north, was later to become part of what we know as Persia; these are painted in purplish black with designs geometrical in effect but found on close inspection to comprise highly stylized animals and birds—goats, for instance, with horns rendered as enormous coils out of all proportion to their bodies, or ostriches in Indian file looking like rows of spots combined with " pot-hooks and hangers ". Analogous wares have been found by Sir Leonard Woolley at " Ur of the Chaldees ", the royal city of Sumer, as well as later types. This explorer's most recent excavations, at Atchana near Antioch, have proved that fine painted pottery was made in early times in Syria also; good examples are two jars attributed to the second millennium B.C., with bird and scroll designs in white on a red ground, which are amongst his latest finds.[1] From these early Oriental wares we shall now turn to those of the classic lands of antiquity, which since the time of their first re-discovery have been one of the chief influences on the potter's art.

[1] *The Antiquaries' Journal*, XIX, 1939, pl. XV.

CHAPTER II

Greece and Rome

THE wares which by common consent are known collectively as "Greek vases" constitute a phenomenon virtually without a parallel; in their importance as historical documents, if not in their peculiar standing as works of art, they surpass the nearest analogies offered by the pottery of later times such as the *minai* ware of Persia, Chinese porcelain, or Italian maiolica. Beginning like many other ancient wares as decorated pottery, they became at their best vehicles for graphic composition and draughtsmanship of the highest order and, at the same time, an invaluable repertory of illustrations bearing on the literature and life of one of the world's greatest civilizations.

The earliest pottery found on Greek soil is not dissimilar in technique to Neolithic wares from other Mediterranean countries; bowls and cups often of very beautiful shape were made by hand without the aid of a wheel, sometimes burnished to a fine glossy black or red surface and ornamented with incised linear patterns. It was only when painting in earthy pigments was discovered as a method of decoration that the seeds were sown from which sprang the splendid harvest of later ages.

Painted pottery was made by the early inhabitants of Greece concurrently both on the mainland, in the kingdoms which were to hand down to posterity legends of the heroic rulers of Mycenæ and Argos, and in many of the islands of the Ægean Sea, but nowhere was the

art brought to such perfection as in Crete. Only in recent decades has exploration laid bare the remains of the wonderful culture which has received its name from Minos, famed in Greek legend for his Labyrinth and its monstrous inmate, half man, half bull. We now know that whilst this great Cretan kingdom endured, in the Bronze Age of the Greek world, lasting from about 3000 to about 1200 B.C., the island was the seat of a great art revealing itself in architecture, wall-painting, metalwork in bronze and gold, stone-carving, and not least in painted pottery.

In the Cretan wares made during the periods which are known to archæologists as Early, Middle and Late Minoan we have evidence for the first time on Greek territory of the use of the potter's wheel. For a time there is little progress in form from the unsophisticated shapes of the hand-made Neolithic pottery, but an obviously distinctive feature is the use of painted decoration. At first, it is true, the introduction of metal-working into Crete involved a decline in the art of the potter, but revival came in due course, with this notable advance in technique. In the earliest stages, brown earthy pigment was used for painting geometrical designs on the natural buff earthenware surface, and later the reverse effect was obtained by the employment of white pigment over a ground of black "slip" with which the surface had previously been overlaid. (This brings for the first time to our notice a technical term of frequent occurrence in books on pottery; "slip" is clay, of any colour but most often white, brought to the consistency of cream by mixing with water, and used either as a surface dressing or as a medium of decoration.)

In the Middle Minoan period an almost monumental sense of form is apparent, combined with magnificent painted designs now no longer merely linear or geometrical but derived from nature and handled with skilful stylization as elements in ordered pattern. It is

characteristic of a seafaring people that they drew almost exclusively on marine life—seaweed, fishes, molluscs, and conspicuously the octopus. For rendering these themes a wide range of colours was brought into play, from black to brown, red, buff and white. It is, perhaps, an indication of a weakened artistic sense that in the beginning of what is known as the Late Minoan age, that is, some 1600 years before Christ, these marine and other natural motives came to be treated in a naturalistic way—still, it is true, with a good feeling for their right placing on the surface in relation to the shapes of the vessels; an octopus, for instance, is shown gracefully waving its tentacles in pursuit of small shell-fishes amongst branching seaweeds. In the last phase before the decline of the Cretan civilization came about there was a return to a more formal and more strictly decorative rendering; the results, applied to shapes of elegant refinement, are sometimes of exquisite beauty, although lacking the impressive power of the earlier styles. As something quite exceptional must be mentioned finally the appearance, about the end of the Middle Minoan period, of siliceous glazes coloured blue and purple with copper and manganese; this technique was introduced from Egypt (compare p. 59) and had no lasting effect on Greek pottery.

Cretan painted pottery stands pre-eminent amongst the wares of the Greek region in these early times, before the advent from the north of the tribes who were to be the founders of the Greece to which the world owes so much. But kindred if generally inferior pottery was made at the same time both on the mainland of the Peloponnesus and in several of the Ægean Islands. To discuss such local variations as they present would take us beyond the scope of a general survey.

The period in which the early Ægean civilization was overthrown, in some regions perhaps in catastrophic downfall, in most more probably by gradual infiltration, before the advance of the Greek invaders from the

north, was one of general decline in the arts, including pottery. A revival came about with the slow growth of a new culture in the Greek " Middle Ages " (as the succeeding period has been called), and in the ninth and eighth centuries B.C. we find the earliest " Greek Vases " proper. Painted wares, sometimes of enormous size, appear in shapes such as the two-handled wine-jar or *amphora*, which anticipate some of the familiar vases of the classical age. The decoration is stiff and formal, with none of the spontaneous grace of the best early Cretan painted wares; it consists in general of tedious geometrical patterns, notably the meander or key pattern, displayed row upon row in horizontal zones encircling the body and neck. On the more important vases human figures, birds and animals are introduced on a small scale amongst these geometrical motives, but themselves reduced as a rule to severely geometrical silhouettes. Foremost amongst these geometrical wares are the products of the Ceramicus, the famous potter's quarter outside the Dipylon (" Double Gate ") of Athens, which city thus makes its first appearance on the stage on which it was afterwards to play so splendid a role. The style was not, however, confined to Athens, and on the outskirts of the Greek world it lingered in a modified form when it had been generally superseded; the jars, bottles and bowls in buff or bright red earthenware, painted in dark brown solely or chiefly with groups of concentric circles, which were made as late as the sixth century B.C. in Cyprus, have been dug up and brought in such numbers to Great Britain and America that they are to be found amongst the ceramic collections of many museums.

A more interesting repertory of decorative themes came to the knowledge of the Greek potters when trading contacts with the East were formed as a result of the foundation of the Ionian Greek colonies on the eastern shores of the Ægean, in Asia Minor. Such Oriental influences naturally made themselves felt first

in Ionia itself and in Rhodes and other adjacent islands, as may be seen in the pottery there made. What may be termed the home port to which the Oriental exports were carried, either direct or by way of these Ionian cities, was Corinth, and it became the chief seat of manufacture of these orientalizing wares, from which they were distributed overseas even as far as Italy, Africa, and the Greek colonies in the Crimea. The characteristics of the Corinthian and kindred wares of the seventh and sixth centures are a buff "body", painting in black, purplish red and white, and designs either of animals, birds, and supernatural creatures such as sphinxes and harpies arranged in horizontal rows (sometimes several on a single vase), or of palmettes or lotus-flowers, in all of which a derivation from Eastern art can be recognized (Plate I, B). Details of the figures or other designs are incised through the pigment with a pointed instrument. The interspaces are thickly sprinkled with rosettes or other small ornaments, so that no part of the surface appears blank, the effect being so strongly suggestive of carpets or embroidered fabrics as to indicate that imported textiles were the carriers of these notions from further east. The commonest but artistically least important of the Corinthian pots are the small footless oil-flasks (*lekythi*), in which the cosmetics for which Corinth was also famous were traded throughout the civilized world.

On the later examples of Corinthian vases human figures as well as animals begin to make their appearance. The potters of Athens, now rapidly rising in importance under good government in the sixth century, adopted and improved upon the Corinthian style. On their wares the Oriental animals and plants soon began to yield place to human figures, which had never disappeared from Attic vases since the "geometrical" period. A famous example of the new figure-painting is the greater *krater* or jar for mixing wine and water known from the name of its finder

A. "Black-figure" *amphora*, Attic (British Museum)
(*Page* 13)

B. Bowl, Ionian (Victoria and Albert Museum)
(*Page* 12)

as the "François Vase" and preserved at Florence. Its sides are clothed with no less than six friezes crowded with scenes from mythology—hunters and charioteers, horsemen, warriors and women—painted with delicate precision and perfect mastery of technique in black on the burnished red surface. We have here the beginnings of the "black-figure" style of vase-painting—painting, that is to say, in which the figures are done in black glaze-pigment in silhouette on the red ground (Plate I, A); details, as on the Corinthian vases, are incised through the pigment right into the "body" of the ware, and sometimes further aided with purple and white pigments (the latter especially for women, to distinguish their paler complexion from that of the swarthy men). At a date about the end of the sixth century "black-figure" painting yielded to "red-figure", in which the ground was covered with black pigment and the figures and accessories were left in reserve to show red; details were now painted in fine black lines instead of being engraved, and, in the work of the finest period, auxiliary pigments were given up, only to be resumed and elaborated when vase-painting was again in decline. For a time the two styles ran concurrently, occasionally being employed by a single artist for compositions on one and the same piece—on opposite sides of an *amphora*, for instance, or inside and outside a drinking-cup; nor was the "black-figure" style entirely abandoned; it was employed till much later on certain funeral vases for which an archaic manner was deliberately chosen for solemnity of effect.

We are now in the presence of a great art, one of several practised at Athens in the fifth century before Christ. But fastidious devotees of pottery may rightly object that it is rather a great graphic art than a high form of the ceramic or plastic art. Content with a lightly fired, porous "body", the Athenians did not attempt any daring adventures with high tempera-

tures, like the Chinese or the stoneware and porcelain potters of modern Europe; though their black pigment is in the nature of a glaze (the constitution of which continues to be somewhat puzzling to technicians), they knew nothing of the splendid glazes stained with metallic oxides invented by the Egyptians and learnt from them in the past, as a brief episode (as we have seen), by the Cretans, and in later ages by generations of Syrian and Persian potters. They worked their clay to such a fine consistency that they were able to give to their wares, by the use of polishing tools at a second turning on the wheel after they had been allowed to dry and harden, a smooth surface no less suited than parchment or paper to receive the most subtle and delicate touches of a fine brush. Their chosen shapes—the *amphora* for storing and the *œnochoe* for pouring wine, the *hydria* for fetching water from the fountain, the shallow *kylix* demanding of the drinker a steadier hand than even the modern champagne-glass—these and many another seem by the graceful perfection of their proportions and outline, and the sharp angles between their members, to show that, in their making, emulation of vessels in bronze or silver was the constant aim; the sturdy jars and ewers of earlier Greek potters certainly proclaim in a more satisfying way their origin in a soft plastic material pressed and guided into shape by unaided human hands. But Greek vases, and particularly the Attic vases of the austere style prevalent in the first half of the fifth century, cannot fail by their paintings to excite the admiration of all lovers of art. For a short period crowded compositions and accessory decorations, such as palmettes and borders of meander, were avoided by some of the best painters in favour of single figures or a pair of figures severely isolated in silhouette on the plain black ground, with no more than a short supporting strip of formal ornament or perhaps a simple line to obviate an effect of floating in space. Later more and more of

the surface is occupied by friezes of figures and pictorial scenes with many participators, in ever increasing elaboration; a schematic treatment of profile, eyes and muscles, and folds of drapery was superseded as the fifth century wore on, by an ever nearer approach to a naturalistic rendering in which foreshortening and some degree of perspective were skilfully employed. Sincerity and directness of appeal were lost in a fussy effort to crowd as much as possible into the picture. A similar elaboration is shown in the palmettes and other ornament enlisted to fill subsidiary spaces.

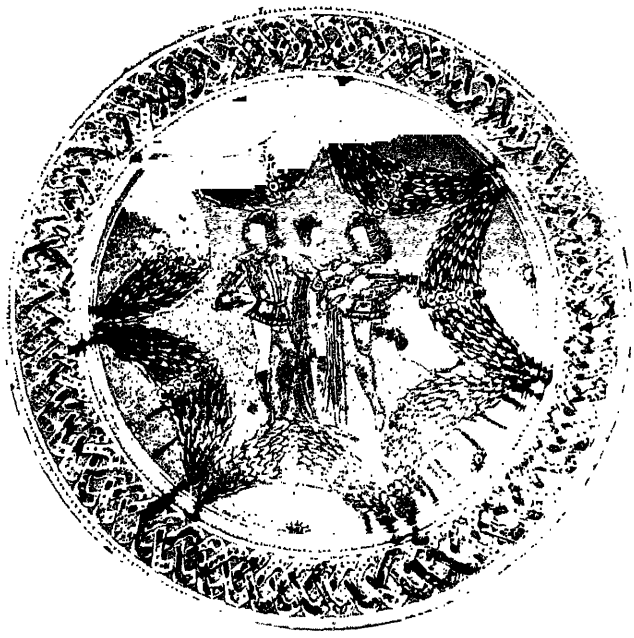
In their choice of subjects the Athenian vase-painters cover almost every conceivable aspect of social life, the destiny of the soul after death, and the myths of gods and heroes handed down by Homer and other poets. In the earlier and later periods alike we find much repetition of stereotyped designs, and the evidence of literature seems to show that some of the compositions are based on fresco and panel paintings; they have in fact the same relation to the works of Polygnotus and Zeuxis as the figure-paintings on Italian maiolica or eighteenth-century porcelain to those of Raphael, Watteau or Boucher. But there can be little doubt that some at least of the vase-paintings by the great masters of the art are original compositions; the boy with a hare in the British Museum, the *discobolus* at South Kensington (Plate II, B), or the girl spinning a top on a cup at Brussels, and countless others that could be named, are unmistakably spontaneous sketches of incidents in everyday life, and many of the mythological designs have no less the appearance of originality.

The plastic nature of clay has often tempted potters to make vessels in human or animal form, and the Greeks were no exception. Amongst the finest Attic vases, from the point of view of technical perfection, are the drinking-cups of the type called *rhyton*, made to be emptied at a single draught, which are moulded in the

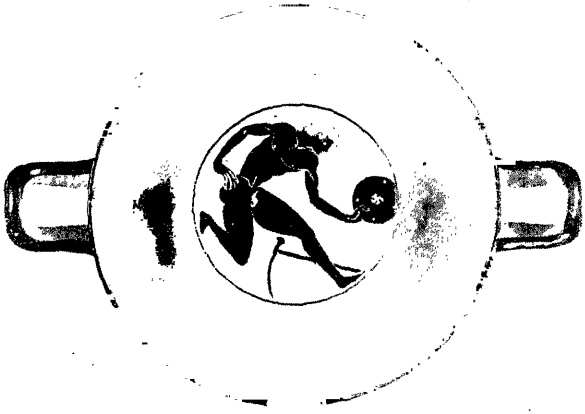
shape of animals' or human heads; oil-flasks were also similarly moulded as figures or even whole groups, and sometimes a dramatic incident is thus represented in the round, as in the case of a vase in the Fitzwilliam Museum, Cambridge, in the form of a negro being seized by a crocodile. In these relief-moulded wares we have an anticipation of the technique which was in Roman times to supplant painting as a method of decorating pottery. Another exception to the normal "red-figure" technique is that of the bottles (*lekythi*) used at Athens to contain offerings at tombs and made specially for this purpose; in these the greater part of the surface was prepared with a coating of white slip for appropriate decoration by fine painting of funeral or memorial subjects in red outline, to which brown, green and blue washes are sometimes added. Drinking-cups on which the same technique has been employed are amongst the most attractive of all Athenian wares.

The "François Vase" mentioned above is signed both by the potter Ergotimus who made it and the painter Clitias who decorated it. It is thus an early example of a practice which has persisted intermittently down to the present day, that of painting or stamping on pottery the name or mark of the firm that made it and sometimes also that of the artist who decorated it. Thanks to this habit, which was general at Athens especially in the fifth century B.C., we can differentiate the work of many Attic painters whose names are now famous, but a discussion of their several styles lies outside the scope of a general survey.

In the fifth century Athens was mistress of the Greek seas and ousted Corinth as the chief trading city; amongst the exports carried by Athenian ships to all parts of the Mediterranean was the earthenware which was one of the city's chief products. Hence it comes that the first Greek vases known to archæologists were those found in the tombs of Tuscany; they



A. Dish, *sgraffiato* ware, Italian (Victoria and Albert Museum)
(*Page* 28)



B. "Red-figure" cup, Attic (Victoria and Albert Museum)
(*Page* 15)

were believed to be Etruscan, and the factory built by Wedgwood for the manufacture of vases in imitation of them was named by him " Etruria " (compare p. 45). Not only the cities of Etruria but the Greek colonies in the south of Italy were profitable customers of the Athenian potters. The result has its parallel again and again in later history; the craftsmen of the importing cities were driven to competition by imitation of the technique and style of the wares by which their local trade was threatened. In Campania, Lucania and Apulia vast quantities of " red-figure " vases were made during the fourth century and onwards until the Greek colonies were conquered by Rome. At first they resembled their rivals, but by degrees they developed styles of their own; with their overcrowded figure-subjects (very often illustrating scenes on the stage) and their elaborate detail they show a rapid decline, no less in technical than in artistic competence; in the effort to make them more attractive, polychrome painting in various earthy pigments was employed to enliven the simple red and black. But no such expedients could make up for inferior quality, and it is with small regret that we turn to the consideration of new and less ambitious types by which they were succeeded.

In the Hellenistic period (third and second centuries B.C.) vase-painting passed through a last and not unattractive phase before it died away altogether in competition with an easier manner of decorating pottery. The " red-figure " technique disappeared, and a new method was employed; light designs on a dark ground were obtained by painting in opaque white or buff over the black glaze. The subjects so rendered, sometimes small figures but often no more than simple wreaths of vine or ivy, have the undeniable charm of prettiness which is the mark of Alexandrian art in the last centuries of the pre-Christian era. It was an age of luxury, in which pottery was employed

only for humbler uses and gold or silver with chased embossments was the chosen material for the wine-cup and flagon. For those who could not afford such splendour the potters began to make wares moulded in relief with designs copied from those of the gold-smith, whether figure-subjects or mere floral and conventional ornament; these earthenware substitutes are of great interest to the archæologist because they give evidence of the character of the vessels which have paid the price of their costlier material by transmutation in the melting-pot.

The technique of relief moulding thus developed by Hellenistic potters was passed on by them to their successors under the Roman Emperors. Pliny speaks of a fine kind of earthenware known as "Samian", probably because it was originally made in the island of Samos, as being produced at Arretium (Arezzo, in Tuscany); the discovery of kiln-wasters at that place has made it possible to identify this Arretine variety of "Samian" with a fine red earthenware, moulded with a large variety of figure-subjects in relief and coated with a hard, very thin, bright red glaze; the beauty and the accurate modelling of the naked figures and draperies prove a high degree of accomplishment in the craftsmen who cut the moulds in which the wares were pressed. "Samian" ware of the same class but varying in quality was made in other widely distant parts of the Roman Empire; a kiln has recently been unearthed at Colchester, proving that not all the "Samian" found in such quantities in Great Britain (as indeed on most sites of Roman occupation) was imported from Gaul, as has often been assumed. The fact remains, however, that potteries in Gascony had a vast overseas trade in the second and third centuries after Christ, and they are shown by the potters' names with which the wares are usually stamped to have produced most of the "Samian" of good quality dug up in England. Much of this ware is decorated in the

manner of the Arretine " Samian ", but very clumsily, with figures and other reliefs (sometimes of archæological interest for the evidence they give, for instance, relating to circus games and gladiatorial contests); far more pleasing, however, are the perfectly plain bowls, cups and flat dishes made for ordinary domestic use, equalling with their hard bright surface and clean-cut profiles modern table china of good quality. Amongst the centres that made good " Samian " ware was Cologne, whence also it was exported to Britain; the Cologne variety often has reliefs " trailed " on in slip in the manner of Staffordshire slip ware of the seventeenth century (compare p. 32). Another Staffordshire procedure found already in " Samian " ware and invented apparently quite independently in China and other parts of the world, is the mingling of clays of different colours to produce a mottled " body " in imitation of the markings of agate or marble. It may be mentioned here that long before the period of the fine Arretine ware Etruria had native plain red and black wares of its own, uninfluenced by Greece, in which the Roman liking for relief decoration was anticipated; the most remarkable are the great oviform jars in red earthenware of the seventh century B.C. vertically fluted and decorated round the shoulder by means of a wood block cut in intaglio, with reliefs of animals or hunting-scenes repeated in oblong compartments (it is, however, possible that these, though found in Etruscan tombs, were not indigenous).

When the Romans expanded their dominions beyond the Alps they came into contact with a pre-existing Celtic civilization, named after the locality in which the most important evidences of it were found—La Tène, in Switzerland, near Neuchâtel; this, in turn, had about 500 B.C. replaced a still earlier culture of high standard (called for a similar reason after Hallstatt, in Upper Austria) and its predecessor in the Bronze Age. The rough Neolithic pottery already mentioned (p. 3) was

succeeded by better made wares in the Bronze Age, such as the finely-shaped urns with high neck and mammiform bosses found in Lusatia. The most remarkable pottery of the Hallstatt period is the ware found in South West Germany—platters and bulbous and oviform jars—with lozenges, zigzags and chequer patterns painted, with an effect almost of gaiety, in red and black earth pigments on the buff "body" (a type which survived into the succeeding period). The La Tène wares are the first produced north of the Alps for making which the potter's wheel, doubtless introduced from the south, was used. The types are various. Great distinction of form is shown by grey and black wares of fine "body", examples of which have been dug up both in France and in England, in shapes of elegant profile rising from a narrow base to a high shoulder which is either rounded or, under the influence of vessels in bronze, turned inward at a sharp angle; in one class the sweep of the profile is broken at well-judged intervals by groups of convex ribs. The smooth burnished surface of these wares needed no pattern to make it attractive and often has none; occasionally a simple pattern has been scratched in the clay, or pressed in with a blunt-pointed stick producing a polished line, as, for instance, the repeated step-motive on the shoulder of a beautiful jar, in the British Museum, from Mesnil-les-Hurlus, in Champagne (fig. 3). The most ambitious of these pre-Roman wares in Gaul are certain urns painted in red on a darker ground with the splendid "Celtic scroll" motive, which survived in Ireland to enrich the design of goldsmiths' work and illuminated manuscripts in early Christian times.

Pottery akin to these early Celtic wares continued to be made by natives in Gaul and Britain, little influenced by contact with Classical art, during the Roman occupation. In Britain various types have been distinguished in addition to the red "Samian"

ware, both home-made and imported, which has been mentioned above (p. 18). Chief of these are the bur-

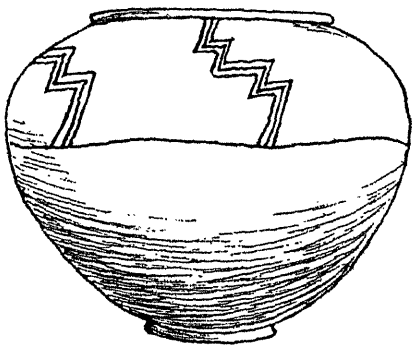


Fig. 3.—Gaulish jar (British Museum)

nished black wares made on the site of Upchurch, near Rochester, which perpetuate in a modest way the sleek, well-proportioned shapes of their Celtic fore-

Fig. 4.—Romano-British (Castor) cup (British Museum)

runners, and those found on a kiln-site at Castor, near Peterborough. The Castor wares, notably goblets with wide mouth and narrow base (fig. 4), display a delightful

technique already mentioned (p. 19) which was occasionally used elsewhere in the Roman Empire (as at Cologne and in Egypt); this is the use of clay "slip", sometimes white on a dark ground, sometimes of the same colour as the "body", trailed on in high relief to form running scrollwork, almost "Gothic" in feeling, or, very cleverly, in vigorous if crude representations of chariot-races, combats or deer pursued by hounds. Another Castor type, also paralleled at Cologne, is a

Fig. 5.—Green-glazed Egypto-Roman cup (Fitzwilliam Museum, Cambridge)

jar with vertical indentations round the sides, sometimes with tiers of overlapping clay scales pressed on with the thumb on the intervening ridges left by the depressions. Such wares as these, unpretentious as they are, prove their makers to have been potters with a sure sense of the possibilities of their art.

In Egypt, the home of glass (see pp. 126–128), there was a highly important development when the Roman technique of relief moulding, which is the chief feature of "Samian", was combined with a glaze containing lead. Recent research suggests that this innovation may have been the result of trade contacts with China (see p. 51). However this may be, in early Imperial times two-handled cups and other small vessels were being made, with charming reliefs of foliage and other

ornament derived from goldsmiths' work, under a rich lead glaze, either yellow or stained with copper to a deep green (fig. 5). Where this lead-glazed pottery was made is uncertain, but it is likely to have been at Alexandria.

An explanation may here be given in parenthesis of the omission of any detailed account of ancient American pottery. The early wares of Peru, often modelled in the shape of men and animals, and the no less remarkable Mexican wares painted in delightful harmonies of black, red, buff and white either with very elaborate pictorial subjects or with quasi-geometrical designs of great dignity, have had no effect upon the outside world until quite recent times (through the channel of the related later American Indian wares). The same is the case with the pottery of the black races of Africa, which for its beauty of form would otherwise be deserving of a place.

CHAPTER III

The European Tradition of Clay Technique

THE centuries that followed the fall of the Roman Empire were in Western Europe a period in which the arts generally were at a low ebb. Pottery was amongst those which, if not altogether extinguished, had a struggle for existence; the centre of civilization had shifted eastwards, and it was in the East alone, as we shall see, that pottery of any sort of refinement was being made during the Dark Ages, or even in the later mediæval period when other arts were flourishing in full brilliance. This is not to say that in the Middle Ages western lands did not produce wares of any æsthetic value. Visitors to archæological museums in the Rhineland, France, England and even Denmark will find mediæval wares full of vigorous character, compelling admiration by their formal qualities and the sense they prove in their makers of the essential possibilities of clay.

An important point here arises. If we compare an early Bronze Age pot such as that reproduced in fig. 1 with a piece of Chinese *famille verte* porcelain of the eighteenth century—such a thing, to name an example, as a good dish or vase of a familiar kind with a painting of a lady in a garden—it is likely that both will give us pleasure; but we are conscious that the stimulation is of an entirely different kind in the two cases. The Bronze Age pot moves us by its plastic quality; its

goodness is that of a soft material kneaded and guided into shape by the pressure of hands. The Chinese dish or vase on the other hand makes its appeal almost entirely as graphic design, by the fine draughtsmanship of its decoration, enhanced by brilliant and harmonious colours; it has such impelling attractiveness of this order that it is hardly thought of as plastic art at all. The difference is a vital one between two classes of pottery and has been apparent already in the Greek vases discussed in the last chapter. In general it is true that, wherever suitable ceramic pigments have been available, and increasingly as their range widened in variety, potters have been tempted to neglect the opportunities for decorative enhancement offered by the qualities of their essential material; they have turned away rather to mediums of an entirely different order, namely, metallic pigments capable of withstanding heat and brought within their scope by enlisting the help of a fluxing agent which, whether described as glass, glaze or enamel, is in substance one and the same. Purists may say that in so doing they have been traitors to their art, but in their apostasy they have produced such loveliness of another kind that few will deny them forgiveness. The wares to be dealt with in this chapter are those in which the tradition of working in clay has been kept up, without recourse (or mainly so) to the ancillary art of the painter. To this group the wares of Western Europe in the main belong, and particularly those of England, where the tradition has been dominant till the verge of modern times. In countries such as China and Italy, where painting has been a leading, if not *the* leading art, and the technique of glazes and enamels has been better understood and mastered, polychrome painted pottery has more readily made itself at home.

Before more is said in detail of English pottery of the Middle Ages an explanation is needed of a feature that distinguishes it at once from the pottery made in

Britain in Roman times and from the rough wares, similar to those made on the Continent, of the Anglo-Saxon period. A lead glaze is almost always present, as at least a partial covering of the surface. It seems likely that the secret of its use was learnt by the English potters from France, and it is virtually certain that ultimately it was derived from the Levant. We have seen (p. 22) that fine lead-glazed earthenware was being made in the first centuries after Christ in Egypt (probably at Alexandria) and in other parts of the Roman Empire, including Italy. The use of such a glaze doubtless endured without a break in the latter country, as may be gathered for instance from the pitchers with tubular spout dug up in the Forum at Rome and attributed to the eighth and ninth centuries; they have a simple but effective decoration of pads or scales of clay stuck on before glazing.[1] Very similar pitchers have been found in Constantinople.

In this latter city, and elsewhere in the Levant—for instance, in Cyprus, Syria and Palestine—potsherds are dug up of lead-glazed earthenware with decoration which, though differing in motives of design, shows everywhere an identical technique[2]; this is effected by covering the buff or red "body" with a surface-coating of white clay slip through which, when it has dried sufficiently, a design is scratched with a pointed tool, or scraped away, so as to reveal the darker colour underneath, the whole being subsequently protected by a bath of transparent lead glaze, which may range in colour from a pale cream to a deep amber yellow;

[1] Compare G. Ballardini, *La maiolica italiana dalle origini alla fine del Cinquecento*, Florence, 1938, fig. 1.

[2] Kiln-sites producing wares of the type in question have lately been located at the Crusaders' harbour, Port Saint Symeon, near Antioch, where they seem to have ceased operation when the place was captured by the Sultan of Egypt in 1268.

(See *Victoria and Albert Museum, Review of Principal Acquisitions during* 1937, pp. 17–8, fig. 1; Arthur Lane, "The Early Sgraffito Ware of the Near East", pp. 51–4, in *Transactions of the Oriental Ceramic Society*, XV, 1937–8; *id.*, "Medieval finds at Al Mina in North Syria," pp. 45–53, in *Archæologia*, LXXXVII, 1938.)

it has long been the custom for convenience to apply to wares showing this technique the Italian term *sgraffiato* ("scratched"), which however, it should be stated, is not employed by Italian writers.[1] Where this technique originated is a problem still awaiting definite solution. Examples of it are not unknown in China, dating probably from the ninth century A.D.; it is common in Central Asia (as at Samarkand) in the same period. In Persia the technique was practised with superb artistic effect on wares attributed to the eleventh and twelfth centuries, although in that country it must have been a less costly substitute for painting in metallic lustre and other pigments (compare p. 63). The potsherds found on kiln-sites at Fostat (Old Cairo) prove that it had a similar status in Egypt. These Egyptian lead-glazed wares, which continued in currency as late as the fifteenth century and range from crude crockery to work of fine artistic quality, are of particular interest, because they show an understanding of the exploitation of pure clay technique in a wide variety of manners, always over a groundwork of coarse, deep red earthenware. The *sgraffiato* method is sometimes used without further elaboration, but very often, in rendering either the coats of arms of the Mameluke nobles, or birds, animals and plant forms, or zones of Arabic inscription, the scratched outlines are filled in with painting in thick clay pigment, white and red, sometimes in combination. Again, such "slip painting" is employed alone, in much the same manner as on the Staffordshire wares to be described later, whilst a further diversity may be given by staining the glaze—usually brown or straw-coloured—bright or olive green with copper. The Byzantine *sgraffiato* ware dug up at Constantinople, Athens, Salonica and elsewhere is also of interest with its frequent employment of Christian

[1] *Sgraffio* (either a noun, "a scratch", or a verb, "I scratch"—it is difficult to decide which is intended) occurs in Piccolpasso's account of this class of ware (compare p. 88, below), and from this word modern English writers seem to have adopted the participial *sgraffiato*.

emblems such as the dove and cross and of Greek sacred monograms; it also rises occasionally to a level of fine artistic quality.

It will be well here to speak of the *sgraffiato* ware of Italy, where the technique was practised with more splendid accomplishment than anywhere else. Employed doubtless on a humble scale in mediæval times, it suddenly rose, in the region north of the Appenines and under the influence of the dawning Renaissance, to the production of true masterpieces of design; the skilled draughtsmanship of the potters is shown not only in their rendering of hares, lions, and other animals, but, above all, in the delineation of the human figure, often in complex and superbly balanced compositions. The all-encompassing art of the great masters of painting with which these potters, like all their fellow-citizens, were in daily contact, unquestionably stimulated them to such high attainment; the more immediate impulse is to be found in the activities of their fellow-craftsmen who possessed the secret of maiolica-painting (to be described at length on a later page), and constituted a formidable rival claim on the patronage of their clients. *Sgraffiato* wares of almost indistinguishable character were made in several places, but supremacy in this branch of craftsmanship towards the end of the fifteenth century belongs to Padua and above all to Bologna. Examples may be seen in the national collections. A dish in the Victoria and Albert Museum, with elegant figures of a mandoline player in the company of a lady and another youth (Plate II, A), represents a type attributed to Padua, paralleled three centuries earlier in a certain class of Persian *sgraffiato* ware; in this the whole of the ground is scraped away, leaving the figures silhouetted in slight relief, whilst touches of blue, green, purple and amber-yellow pigment are added to give diversity of colour. A great basin, also at South Kensington, with three lions modelled in the round to support it, and the subject of a naked man

wrestling with a dragon engraved inside it, represents the Bologna ware of about 1490, in which the touches of pigment are limited to green and brown; from the same workshop comes a dish in the British Museum with two figures in dress of the period accompanied by shields with emblems of the Visconti and Este families. This high standard was not long maintained, and in the seventeenth century Italian *sgraffiato* ware dropped to the level of a rather ragged peasant art.

From this survey of antecedents and collaterals we return to follow the story of English pottery of the native type. There is no evidence to show that pottery was made in England after the overthrow of the Romano-British civilization until the thirteenth or perhaps the twelfth century, and everything seems to indicate that the craft was reintroduced from abroad after the Norman Conquest. It is likely that thereafter pottery kilns were set up to supply local needs in any part of the country where suitable clay was at hand, and remains of mediæval kilns, or kiln "wasters", have been found amongst other places at Nottingham, Lincoln, Ely, Hastings, Rye, Cheam, Barnstaple, and near Hereford, whilst groups of pots dug up in various localities showing characteristics in common and differing from those of other groups, justify the presumption of workshops once existing in or near London, York, Bristol, Salisbury, and Oxford. Amongst the earliest types two, occurring in London finds, are conspicuous, a graceful spindle-shaped jug, wide-spreading at the base, with an excellent glaze stained dark green with copper; and a high pitcher, generally showing only a smear of glaze and peculiar for the convexity of the neck, repeating that of the body and drawn in bluntly to a flangeless mouth. Jugs from the Cheam kiln are remarkable for bold scroll foliage painted in dark brown, indicating by its style a date little if at all after 1300. In the fourteenth century the tendency is towards broader proportions, with stout capacious

body and handle firmly pressed on, trefoil-like depressions being scooped out with the thumb at its base (the thoroughly satisfactory attachment of the handle is an almost invariable feature of these mediæval jugs, in marked contrast with many of more recent make). Glazes vary in colour from yellow and brown to greyish or bright green, and decoration of some kind becomes general. Sometimes this consists of a few lines scratched with a stick, but very often the plastic quality of clay has been used to advantage in adding ornament in slight relief (Plate III, A). A few only of the many varieties of relief decoration can be named—studs like those on the jugs found in Rome (see p. 26); small shreds of clay stuck on either in vertical stripes—exactly as on some mediæval jugs from Constantinople in the Kaiser Friedrich Museum, Berlin—or covering the whole surface with a scale-pattern (the latter especially on examples found in London); on several pots found at Oxford, bold Gothic scroll-work in narrow strips of clay with small indentations giving the aspect of a coiled chain; somewhat ungainly bearded masks and arms with elbows akimbo seem to be a feature employed especially at Cambridge and elsewhere in the East; York shows in its museum a noble array of squat brownish-green jugs with applied reliefs such as heraldic shields and devices or ears of corn, shaped in moulds probably of wood. An early jug with a shield on the front, in the Royal Museum, Canterbury, proves that the *sgraffiato* technique (compare p. 27) was not unknown. To the fourteenth century or perhaps earlier belong the vessels of animal form—one such represents a mounted knight in armour—of which examples can be seen in several museums; their inspiration was derived from the well-known ewer in bronze or silver known as an aquamanile and used in washing the hands, and it is interesting to note that the idea had been adopted some four centuries earlier, as may be seen from a specimen in the museum at

A. Earthenware pitcher, English, fourteenth century *(Page 30)*

B. Stoneware jug, Westerwald *(Page 37)*

C. Stoneware jug made by Dwight *(Page 39)*

D. Slipware mug, Staffordshire *(Page 33)*

(A London Museum: B, C, D, Fitzwilliam Museum, Cambridge)

Spires, by a Carolingian potter of the Rhineland closely copying a bronze original from Syria or Persia.

In the fifteenth century London seems to have taken the lead in the direction of polychrome decoration by employing for such relief ornaments clays (sometimes more than one) differing in colour from that of the pot itself, perhaps further helped out with touches of copper-green; thus it was possible to produce so gay an object as a jug in the London Museum, with red flowers on green stalks in relief on a primrose-yellow ground, or another very handsome one, at Maidstone, with a bold chevron pattern in brown set with a row of studs in buff. Jugs have been dug up at Copenhagen so similar in technique and appearance as to indicate some sort of contact between English and Danish potters at this time. In the Tudor period there seems to have been a reversion to simpler types, as shown in some neatly shaped jugs with a good bright green glaze and in the red wares—particularly inverted conical or bell-shaped cups with three or four handles—fired to the hardness of stoneware and covered with a thick sheeny dark brown glaze. The latter, from being found in numbers on the sites of monasteries of the Order, are commonly classed as "Cistercian ware"; they were certainly being made before the Dissolution, and are the forerunners of the Staffordshire brown-glazed wares of the seventeenth century. An exception to such plainness is afforded by green- or yellow-glazed stove-tiles, candle-sconces and flasks moulded with the Royal Arms and emblems in relief, which seem to have been made in a London workshop, probably by an immigrant from Germany, one of the many foreign craftsmen employed for the Court of Henry VIII.

In the seventeenth century native English pottery assumed the character of "slip ware" in its manifold varieties, and this continued as a form of peasant art in out-of-the-way places well into the nineteenth

century. Its characteristic is the decoration effected by the manipulation of clay, either white or buff, red, dark brown or greenish-grey,[1] mixed with water to a creamy consistency (compare p. 22). This "slip" may be used to carry out inscriptions or representational designs, by trailing it on out of a spout in the manner of sugar icing on a cake, or it may be applied in pads and then stamped with a pattern in relief, or it may be laid on in bands of two or more colours and then, with a wire brush, worked into markings like those of a stone or combed into regular feather-patterns, often of great beauty. Very occasionally in England the *sgraffiato* technique was used; clays of different colours were also mingled not merely superficially but, as long before by the Ancient Romans and the Chinese, to make the "agate ware" out of which a pot was thrown or moulded.

The earliest of the English slip wares are those made in or near London, with inscriptions often of a Puritanical turn ("Watch and pray," "Be not hy minded"), in white on red, and at Wrotham, in Kent; the latter place is known especially for nearly cylindrical drinking-pots known as "tygs", with stamped or trailed reliefs and four handles, each double-looped, generally with a plait of red and white clay neatly embedded in a groove cut down the upper loop. Yorkshire, Somerset and Devon had their slip ware potteries with their own local peculiarities lasting till the middle of the nineteenth century; workshops in the Weald of Sussex and Kent developed a kind, very attractive at its best, in which artless designs were impressed in the red ware with small stamps or printers' types and then inlaid with white clay—a technique analogous to that of the splendid English floor-tiles of the Middle Ages. Amongst all these centres of a rustic craft the neighbourhood of Burslem in North Staffordshire soon

[1] It must be understood that these colours are those assumed by the clay after firing, not of the clay in its raw condition.

began to take the lead owing to certain advantages of situation; amongst these were coal at their very doors instead of wood for firing their kilns, as well as suitable beds of clay, and good facilities for the distribution of their wares by water, enabling the Staffordshire potters to outstrip their competitors and to start on a career which was to bring their successors to the very forefront of the ceramic industry of the world.

The Staffordshire slip wares show such diversity that anything like a complete survey of them would here be out of place. Mention may be made in particular of the great, highly decorative dishes which, side by side with the simpler combed or marbled dishes made for ordinary use in the kitchen or bakehouse, were turned out late in the seventeenth and early in the eighteenth century presumably to celebrate special occasions such as weddings or birthdays. They display sometimes rude but vigorous figures or busts of the king and queen, sometimes shields or heraldic animals, lions, eagles, mermaids, and so forth, or merely conventional tulips, roses or other flowers, trailed on in dark lines, afterwards as a rule dotted with white, the figures being filled in with flat washes of contrasting colour. A name inscribed on the rim is a very common accompaniment, and most of the finest examples of this type of dish bear that of Thomas Toft; whether he was their maker or their recipient is a question still undecided, but the balance of opinion is in favour of the former interpretation. Dishes are not the only articles decorated in this manner and similarly inscribed; covered posset-pots with a sucking-spout for serving hot drinks, jugs, mugs, models of cradles for keepsakes (or perhaps pipe-trays) also occur, and it is on some of these that the delightful combed feather-ornament is seen in a perfection which entitles such articles to a high place in the realm of ceramic achievement (Plate III, D).

Hitherto we have seen the English potters in their

country workshops pursuing their local and highly individual craft on traditional lines quite undisturbed by influence from the outside world. In the reign of Charles II, however, something happened which brought with it the seeds of revolution. The Dutch and English East India merchants had, since the beginning of the century, been bringing to western Europe not only silk and lacquer but also, for the first time as a regular article of import, Chinese porcelain, and to this list was now added tea. Tea-drinking at once became the fashion, and to meet it suitable teapots and cups began also to be brought from the East. Through the enterprise, at first, of two Dutch silversmiths, brothers named Elers, who came to England with William of Orange, efforts were made to compete with these imported tea-table wares by home production, and the Staffordshire potters saw established in their immediate neighbourhood a workshop for making hard red ware superficially much like the Chinese. The consequence was a speedy reform in the traditional methods of the district in the direction of refined workmanship.

But at the same time other extraneous influences were beginning to operate, and for the understanding of these a long digression is necessary. Pottery during the Middle Ages in Germany did not for the most part fall into the class of lead-glazed earthenware. The museums of Mainz and other cities in the Rhineland show us mediæval wares admirable in shape and often with striking geometrical and other formal decorations, either incised and impressed or painted in dark earth pigments, but generally destitute of glaze. One of the advantages given by glaze was obtained by firing the wares to a high temperature so that they became hard and impervious, and thus stoneware, already known to China, was evolved quite independently in Europe. Stoneware is perhaps the outstanding German contribution to the process of ceramic evolution. In the region of Mainz are found jars, sometimes with lids,

and jugs, attributed to the fourteenth and fifteenth centuries, made of a hard unglazed ware either grey or dark red with a tendency to a chocolate tone; they are mostly without decoration, but their strong horizontal ribs give them a great attractiveness to those who like to see in a pot some traces of its creation on the wheel. Dreihausen, near Marburg, in Hesse, was a place in which dark red stoneware of this kind continued to be made for centuries; some of the more showy pieces of this Dreihausen ware, in its earlier period, were carved before firing with very elaborate deep-cut ornament like the traceries of the late Gothic windows of the time.

It was, however, lower down the Rhine valley that the great German stoneware industry was to find its lasting home. At Siegburg, near Bonn, a pale cream-coloured stoneware was made from about 1300 until the city was sacked by a Swedish army in 1632 and its potters sought refuge elsewhere. The principal earlier productions were tall slender jugs with pronounced horizontal ridges, which were widely exported throughout the north and to England. In the sixteenth century Siegburg adopted the mode of decoration which was common amongst the stoneware-potters of the Rhineland; reliefs made by pressing in moulds of baked clay or soft stone were stuck on to suitable parts of the surface, accessory ornament being added either by incising with a pointed tool or by repeated impressions with small brass stamps. The most characteristic of the standard Siegburg shapes is a tall tankard (called *Schnelle*) with sides tapering slightly upwards; it lent itself to the application of three vertical strips or pads on which would be reliefs either of single standing figures, or of medallions in tiers with floral or scroll ornament between. For the subjects of these reliefs the mould-cutters drew on the engravings of the German "Little Masters" of the period, whose repertory covered not only Biblical

scenes and emblematic figures but also a few themes from classical mythology. Shields of arms and occasionally portraits of contemporary sovereigns also occur. One of the finest examples of Siegburg stoneware in existence is the centrepiece in the form of a wine-cistern and candlestick combined made for the potters' guild and decorated with the arms of the Empire and of the neighbouring duchy of Juliers, Cleves and Berg; it is in the Victoria and Albert Museum.

The earlier Siegburg and other stonewares were unglazed and, as stoneware is non-porous, glazing is of less importance than on earthenware, but in the sixteenth century and later it was customary to glaze stoneware also. This is done by shovelling common salt through holes into the kiln when a high degree of temperature has been reached; the salt vaporizes, the chlorine in it combining with the carbon from the fuel as hydrochloric acid gas, whilst the sodium unites with the silica and alumina of the clay to form what is known as a salt glaze on the surface of the wares. If the clay has a large iron content or if a ferruginous surface-dressing has been applied to the wares before firing, this glaze takes on a deep brown colour.

Cologne had several stoneware kilns, until about 1570, when owing to the danger of fire in the city their owners removed to the neighbouring town of Frechen. The wares of both places are distinguished by their rich brown glaze, which in later wares of Frechen tends to coagulate in thick blotches. The relief decoration is similar in technique to that of Siegburg but as a rule simpler, being often confined, on jugs, to a band round the waist and one or two small medallions with busts or rosettes; but a common feature, begun at Cologne and continued especially at Frechen, is a bearded man's mask applied on the front of the neck. In the seventeenth century vast numbers of fat-bellied Frechen jugs of this kind, often very crudely made, found their way across the sea for use in England, perhaps filled

with Rhenish wine, and were given the name of " greybeards " or " Bellarmines ", in uncomplimentary allusion to the cardinal of that name, unpopular in Protestant countries. The consequences of this export trade will be related after the remaining classes of German stoneware have been briefly reviewed.

The other chief centre of the stoneware industry in the 16th century was at Raeren, near Aix-la-Chapelle. The earlier Raeren wares have a rich brown glaze and are conspicuous for their admirable shapes, sometimes of large proportions, which show in their makers a fine, almost architectural sense of form; in technique —applied reliefs and stamping—and in the content of the motives of decoration employed they are not different from the wares of Cologne and Siegburg. Towards the end of the century the greatest of the Raeren master-potters, Jan Emens, introduced a new class of stoneware made of a clay burning to a light bluish grey, at the same time using cobalt-blue pigment applied before firing, to colour the background of the reliefs and in other details. After 1600 the Raeren potteries declined and the industry shifted to Grenzhausen, Höhr and other villages in the Westerwald district, near Coblenz. Here at first the traditions of the Raeren blue-and-grey ware were followed. Later in the century a different style was developed; a rich manganese purple was pleasantly and effectively combined with the blue for ground colouring, and incised ornament played an increasing part as an auxiliary to the moulded reliefs. Typical of this stage are the large jugs with cylindrical neck, generally reeded, and globular body showing on the front a shield or monogram in relief flanked by formal flowers or palmettes, also moulded, with stems in the form of wavy bands incised in the clay; such jugs were largely made for export abroad and are often found in England with the portraits of William and Mary or crowned cipher of Queen Anne or George I (Plate III, B). The Wester-

wald continued till modern times to produce stoneware, but of inferior quality.

The only important manufacture of stoneware in Germany elsewhere than in the Rhineland was at Kreussen, in North Bavaria. Its characteristic products in the seventeenth century were squat broad-based tankards with reliefs picked out with somewhat garish enamel colours and gilding fixed by a second, low-temperature firing; the motives of decoration were to a large extent those employed by the glass-enamellers of the same region, and it is possible that the same workshops enamelled both stoneware and glass (compare p. 147).

The large importations of Rhenish stoneware into England prompted men of enterprise to introduce the manufacture itself. Already in Queen Elizabeth's reign a move was made in this direction, but there is no certainty that stoneware was made in England before 1626; in that year Charles I granted a patent to Thomas Rous and Abraham Cullyn (*alias* Cullen), one Dutch born, the other of Dutch extraction, for making "stone" pots and bottles. Their kilns were in London, at St. Andrew Undershaft. None of their wares can be identified with certainty, but it is likely that they resembled those imported from Frechen so closely as to be almost indistinguishable from them. A good case has been made out for the English origin of a stoneware wine-jug, without the bearded mask of the Frechen jugs (see p. 36), made about 1655 for the landlord of the famous Cock Tavern in Fleet Street, and a "greybeard" (dated 1660—that is, after both Rous and Cullen were dead), both in the Ashmolean Museum, Oxford.[1] With the year 1671 we come to the activities as a potter of John Dwight, of Oxford, and all uncertainties cease as to the nature of the stoneware made in England.

[1] See Aubrey J. Toppin, "Rous and Cullen, merchants and potters", in *Transactions of the English Ceramic Circle*, No. 5, 1937, pp. 38–48.

Dwight was in close touch with the circle of scientists who after the Restoration founded the Royal Society. In 1671 he took out a patent for the "Mistery of Transparent Earthenware commonly knowne by the Names of Porcelaine or China", and "stone ware vulgarly called Cologne ware", and three years later he was at Fulham, where he set up the stoneware pottery still in existence. Numerous specimens of ware have survived which can be attributed with certainty to Dwight. They include some rather crude "greybeards" in imitation of those made at Frechen, as well as bottles, a punchbowl and mugs not only in brown and marbled grey stoneware quite different from the German types (usually with small relief ornaments, amongst them busts of William and Mary, stamped on applied pads, Plate III, c), but also in a fine white stoneware which, where it is thin, is translucent like porcelain; this white ware was the outcome of an innovation of Dwight's which was later to have important consequences, in Staffordshire—the mixture with the clay of flints calcined and ground to a powder. Fragments of a Westerwald blue-and-purple jug (compare p. 37) discovered at the Fulham pottery with other evidences of his work explain the reference by his friend Dr. Plot to his discovery of "the mystery of the Hessian wares". It is almost certain also that some of the mugs and cups imitating the imported Chinese red stoneware (compare p. 34) are from Dwight's kilns. Their most remarkable productions, however, were a number of busts and statuettes modelled in white or in bronze-coloured stoneware, masterpieces by a hand as yet unidentified, including a life-size portrait of Prince Rupert and a series of classical gods and heroes. After Dwight's death this high standard was not maintained, and the output of the Fulham pottery consisted chiefly of jars and tankards for use in taverns —sturdy wares decorated with applied reliefs of hunting-scenes, inn-signs, busts of the reigning sovereign

and other subjects. Precisely similar articles were made also in stoneware potteries at Lambeth, which have continued in operation to the present day.

From London the manufacture had spread before 1700 to the Midlands. Nottingham made very attractive stoneware of admirable form with a lustrous brown glaze and decoration of several kinds including freely incised sprays of flowers and scrollwork. The earlier Staffordshire stoneware has only lately been identified, partly with the help of brown-glazed wasters with relief portraits of Queen Anne dug up a few years ago at Burslem.[1]

This sketch of the history of stoneware in Europe has been necessary in order to explain how, at the end of the seventeenth century, the Staffordshire potters were brought indirectly under stimulating influences from China and Germany, the first through the settlement in their neighbourhood of the Dutch brothers Elers, the second through competition with the manufacture of salt-glazed stoneware, lately introduced into England; important also was their learning the secret discovered by John Dwight, that a white-bodied ware could be made by adding burnt flints to the " body ", for only with wares not only dainty in shape but also light in colour could they hope to compete with the novel attractions of snow-white Chinese porcelain. Two potters named Twyford and Astbury are credited with some of the improvements which were speedily effected in the quality of the Staffordshire wares.

An early refinement was the addition, to the unglazed red ware with small stamped ornaments of the kind made by Dwight and the Elers brothers, of the traditional lead glaze, giving it a glossy surface of deep red tone; interesting diversity was obtained by using dabs of white pipe-clay instead of the red clay for the little stamped reliefs, and the same form of decoration

[1] See W. B. Honey, "English salt-glazed stoneware", in *Transactions of the English Ceramic Circle*, No. 1, 1933, p. 15.

was employed for wares made in clays firing to buff or dark brown. Teapots and jugs of coloured clay were sometimes given spouts and handles in white. The first step towards a white surface was the coating of the coloured body with a surface wash of fine white clay obtained from Devonshire; but the decisive move forward came when the Staffordshire men learned what, as we have seen, Dwight had found out before them, that a pure white "body" could be obtained by mixing flint with the lighter, yellow-firing plastic clays.

From now on for some time two different types of ware were being made by the Staffordshire potters out of the same "body" and in the same workshops. One of these was a white stoneware made by firing up to the heat necessary for fusion of the clay particles and glazing with salt—the famous Staffordshire "salt-glaze ware" (Plate IV, A); the date 1724 on specimens in the British and Fitzwilliam (Cambridge) Museums is the earliest recorded on this class of ware. The other type was earthenware fired at a lower temperature and covered with a lead glaze, a glaze which owing to the presence of iron impurities, continued to be of a yellowish straw or cream colour; this defect (as it appeared to the devotees of Chinese porcelain) was eliminated by later improvements. Identical decorations are found on both the salt- and the lead-glazed wares. On the earlier we have the familiar little stamped reliefs, sometimes ingeniously used by repetition and combination to build up pictorial subjects, as on the mugs and bowls made to celebrate Admiral Vernon's victory in the West Indies in 1739. In course of time, however, it was realized that relief decoration could be obtained much more easily by the use of moulds with the designs in intaglio. These were either of brass, alabaster or hard-fired clay, into which a slab or "bat" of clay (rolled out like pastry under a rolling-pin) could be pressed, the two halves of hollow vessels such as jugs

or teapots being subsequently "luted" together at the edges; or else intaglio moulds of plaster were made in two halves from a block with ornament in relief and into these two halves, firmly lashed together, liquid slip was poured; the porous plaster drinking up the water leaves on the inside of the mould, after the superfluous liquid has been emptied out, a cast in clay which, when left to dry, can be released from the mould and is the pot, ready to go to the kiln for firing. This last is the casting process which has been in use in England since the middle of the eighteenth century for the manufacture of cheaper kinds of pottery.

One or two methods of decoration peculiar (in stoneware) to Staffordshire salt-glaze call for mention; one of these is "scratch blue", common about 1745–60, the scratching of floral designs or inscriptions in the soft clay and rubbing into it clay stained blue with cobalt (at an earlier stage similar "inlaid" designs had been done with dark brown clay). The other is painting in brilliant enamel colours fixed at a second firing, in emulation of painted porcelain, a practice which seems to have been introduced into Staffordshire by immigrant Dutch enamellers. Salt-glaze ware, attractive as it is in many ways, has disadvantages in use which cause it to go under in competition with the improved lead-glazed wares which must now be discussed.

One of the most enterprising Staffordshire potters about the middle of the century was Thomas Whieldon, of Fenton Low. He seems to have taken the lead in making the lead-glazed earthenware more attractive by diversity of colouring. Already in the early years of the century we find a glaze of a rich speckled purplish brown colour (derived from manganese) covering a buff "body" of the kind commonly used for the slip ware of the period. Whieldon used the same sort of glaze on wares made of the improved whitish body, and also a mottled effect—slate-blue, mouse-grey, bright green, and amber-yellow, as well as purple—obtained by

A. Salt-glaze ware teapot, Staffordshire
(*Page* 41)

B. Whieldon ware tureen, Staffordshire
(*Page* 45)

(All, Victoria and Albert Museum)

C. Chestnut-bowl, cream-coloured ware, Leeds
(*Page* 46)

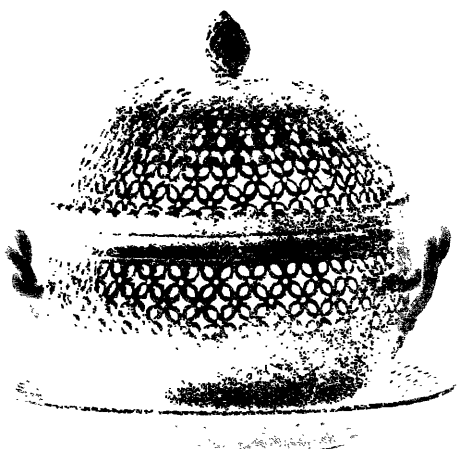


PLATE IV

dabbing powdered ores to produce these colours on the surface before dipping in the bath of glaze (the process by now adopted instead of applying the glaze in a dry powdered state); this polychrome ware he called " tortoiseshell ". He decorated it either with moulded or cast reliefs, or by the process called " sprigging ", that is, by sticking on the surface leaves previously shaped in separate moulds and coiled stems made by rolling out cords of clay between the palms of the hands (Plate IV, B). Whieldon also made " agate wares ", of mingled clays differing in colour or stained blue with cobalt, of much greater refinement than his predecessors. Like other potters in Staffordshire he included amongst his output " black ware ", that is earthenware with a lead glaze stained to a glossy brownish black; it was made also at Jackfield in Shropshire, and has continued in favour for teapots to the present day.

In 1754 Whieldon took into partnership a man born twenty-four years before, at Burslem, of a family of potters, himself to be the forefather of distinguished descendants. This was Josiah Wedgwood, who in 1759 set up in his native place as a manufacturer on his own account. Wedgwood had the advantage not only of a thorough training in the craft of potting but also of an enterprising and inquiring temperament combined with æsthetic good taste, qualities which fitted him for the improvements he was to make in the local industry. Whilst in partnership with Whieldon he seems to have been responsible for the introduction of the rich copper-green glaze seen on tea-table wares moulded in the form of cauliflowers or pine-apples. Possessed of a factory of his own, he made it his first purpose to improve the light-bodied " cream ware " of the district so as to accord better with rising standards of comfort and culture. He soon brought it to such perfection that he secured the patronage of Queen Charlotte and the right to name it " Queen's

ware " (Plate V, A). When, shortly after, the ingredients of true porcelain—china clay and china stone—newly discovered in Cornwall, were exploited with success in the west of England (compare p. 110), Wedgwood was one of the Staffordshire potters who took advantage of the discovery by adding these materials to the ingredients of their earthenware. His good judgment was seen also in the new shapes he adopted in conformity with the latest fashions of the day. These were derived from the study of the antiquities of Herculaneum and Pompeii, and of the vases found in Etruscan tombs, then lately brought to the knowledge of the cultured world by the publications of the Comte de Caylus and of Sir William Hamilton, the British Ambassador at Naples; it is interesting to note that a copy of the great work on Sir William Hamilton's collection was acquired by Wedgwood in 1769. Some of his shapes show in their elegance that he was familiar also with the contemporary silversmiths' work of Birmingham and Sheffield.

Much of the Queen's ware was quite plain or decorated only with reliefs or openwork in the manner of plate. Where painting was required it was carried out in the local workshops which did the enamelling on salt-glaze ware (compare p. 42); at a later period the wares were sent from Burslem to be decorated at the workshop in London, presently to be mentioned. Transfer-printing over the glaze was also at this time a popular method of decorating earthenware and porcelain, and for this Wedgwood sent much of his Queen's ware to the workshop of Sadler and Green at Liverpool (compare p. 98).

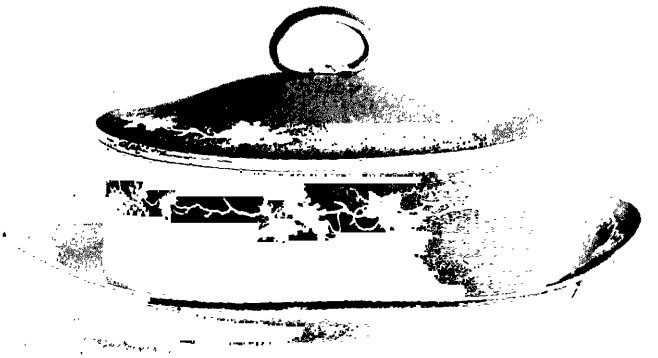
In 1768 Wedgwood took into partnership his friend Thomas Bentley, a Liverpool merchant of liberal tastes who was keenly interested in the antique, and they established the factory still existing near Hanley; the first firing in it took place in the following year. This new factory was intended at first entirely for the

production of ornamental wares (the " useful " Queen's ware was to be made as before at Burslem, and so continued till 1773, when the old factory was given up), and the nature of these was indicated by the name " Etruria " given to the works. The first articles fired were, in shape and partly in decoration, copies of an ancient Greek " red-figure " vase. They were followed by many literal but lifeless copies of the same kind, from specimens borrowed for the purpose; the painting on them was done not at Etruria but in the enamelling workshop which had lately been established under Bentley's supervision, first at their showrooms in London and later at Chelsea, where enamellers who had worked at the neighbouring porcelain factory were available. For these plagiarisms of the antique, Wedgwood employed a new type of unglazed black stoneware he had developed which he named " Egyptian black " or " black basaltes ". By refining the local red-firing and buff-firing clays he evolved new stonewares called " rosso antico " and " cane ware "; the latter, as a concession to the fashion for *chinoiserie* which persisted alongside the new neo-classical, as may be seen in some of the furniture designs of Chippendale, was often moulded and enamel-painted to simulate bundles of bamboo. Proudest of all his achievements in his own estimation was his " jasper ware ", a fine stoneware containing barium in its composition, which could be stained blue, lilac, sage-green or black and was generally decorated by the " sprigging " process with moulded reliefs in white, including figure-subjects imitating (in appearance but not in technique) antique cameos (Plate XII, B). Like the black basaltes, jasper, especially the favourite blue, was used not only for vases and useful wares but also for making all kinds of trinkets, as well as medallions with cameo or intaglio figure-subjects after the antique and portrait busts; many of the latter representing persons of the time are as excellent technically as they are

interesting. Most of these varieties of ware continue to be made at Etruria to the present day, and they are too familiar to need further description; what they may lack in spontaneity of conception is partly made good, in the earlier examples, by their high standard of workmanship. Wedgwood's most famous performance in this direction consisted in reproducing, in black jasper, the ancient Roman cameo-cut glass vase known as the "Portland Vase" (compare p. 132).

Vases in classical style were also made at Etruria in glazed earthenware in imitation of agate, porphyry and other such stones by improving upon the methods employed by some of Wedgwood's predecessors. The table services in Queen's ware were brought up to a high level of refinement, being generally painted in admirable taste with simple borders of vine, palmettes and other classical motives in sober and harmonious enamel colours. Wedgwood showed his good judgment by engaging to work for him John Flaxman and other competent artists. His great merit consists not so much in inventing new types of ware for ornamental vases as in organizing on a commercial basis the manufacture of "useful" ware of high quality, serviceable, hygienic and at the same time æsthetically satisfying.

Wedgwood's success called forth a host of competitors, some of whom were little behind him in the quality of the goods they made. In his own district we find amongst others Adams, Palmer, Turner, and Neale, some of whom began their career as his assistants. Outside Staffordshire his chief imitators were the firm that brought up-to-date an old pottery at Leeds; here and at one or two other factories in Yorkshire excellent cream-coloured earthenware was made, the Leeds ware being remarkable for its pierced decorations done with great skill by hand-punching with small metal stamps (Plate IV, c). Mention may here be made also of the factory at Burslem owned by the Wood family, in which towards the end of the eighteenth



A. Butter-box, Wedgwood's "Queen's ware" (Mrs. L. G. Drummond)
(*Page* 44)

B. Porcelain teapot, Worcester (Victoria and Albert Museum)
(*Page* 112)

centure the traditional colour-glaze painting technique of their predecessors was continued in the output of attractive wares, including a variety of figures, intended for a humbler class of buyers than the fashionable patrons of Wedgwood.

The cream-coloured ware of Wedgwood and his imitators had such obvious advantages in use that it killed the manufacture of delft ware (to be dealt with later) and quickly became a serious rival even to porcelain. Exported to the Continent and America, it was so eagerly welcomed that foreign potters were compelled to compete with it by themselves manufacturing the same kind of goods, often in slavish imitation. Nothing contributed so much as this invasion from England to the decline of the time-honoured maiolica and faïence which had flourished during the eighteenth century in almost every country of Europe.

To complete the survey of the traditional technique in Western Europe a few words must be added as to its development on the Continent. French mediæval lead-glazed pottery was similar in general character to that of England but hardly its equal in originality and vigour (conditions were perhaps less favourable owing to a more widespread use in France of vessels in other materials). It had, however, two remarkable outgrowths in the Renaissance period. One of these, flashing across the firmament of ceramic history like a meteor and disappearing without leaving a trace of influence behind it, is "Henri Deux ware", first appearing about 1525 but made chiefly in the reign of that monarch—it would seem, in some small private workshop at Saint-Porchaire, in Poitou. It was a soft whitish earthenware with decoration in which applied moulded reliefs were combined with openwork and rows of small repeated ornaments impressed with bookbinders' stamps and inlaid with dark or light brown clay. The designs are sometimes enlivened with touches of green and blue painted on before the wares were

dipped in the pale cream-coloured lead glaze; in style they are highly sophisticated, reflecting the latest architectural fashions of the time, when flamboyant Gothic was yielding to the classical themes of the early Renaissance.

More lasting in their effect were the innovations of the famous Bernard Palissy, a glass-painter of Saintes, who took to making pottery. He tells us in his memoirs that he was inspired to do so by the sight of an earthenware cup, which was in all likelihood an example of the "Henri II ware" then being made in the same region as his home. His noteworthy achievement consisted in the development of lead glazes richly stained by mixing them with colouring oxides—blue, green, purple and amber-yellow—and in the employment of them as pigments on decoration moulded in relief. His earliest compositions were of a curious kind—casts made from snakes, crayfishes, beetles, ferns and other living creatures and plants of the local swamps and meadows, stuck in full relief on the surface of a dish in arrangements which display a genuine gift for design; later he adopted figure-subjects pressed in moulds after originals in brass or pewter, or formal designs in the fashion of the time made up of strapwork, rosettes, masks and foliage. Palissy won the royal patronage of Catherine de Médicis and was summoned to Paris, where he did some architectural work in colour-glazed earthenware for the queen, but he died a prisoner in the Bastille for his Protestant faith, in 1590. His sons and others carried on his work in potteries near Fontainebleau, but in steadily declining quality. Analogous wares with relief decoration in colours, in which, however, the glazes were mostly in the nature of enamels made opaque by using oxide of tin in their composition, were produced in the sixteenth century in several parts of Germany; some of the best, such as a great jug in the Victoria and Albert Museum with reliefs of the Adoration of the

Magi and the Massacre of the Innocents, come from the workshop of Paul Preuning at Nuremberg, but wares of a similar kind were made at Salzburg, Annaberg in Saxony, and perhaps elsewhere. At Neisse, in Silesia, a peculiar technique was adopted; a design was incised in outline with a sharp-pointed tool and then filled in with flat washes of coloured enamels of the same kind as those laid over the reliefs on the wares of Preuning and his followers.

The lead-glazing technique was not able to maintain itself on the Continent as it did in England. Confronted with the invasion of tin-enamelling and of porcelain from the East which will be related in another chapter, in France as in Germany and Switzerland, it was driven into the fastnesses of peasant art, the output of which, by no means always devoid of æsthetic merit, may be studied in such collections as that in the Fitzwilliam Museum, Cambridge. It returned, in an " improved " industrial form, routing its rivals, towards the end of the eighteenth century when, as we have seen, Wedgwood and his followers flooded European markets with their wares, compelling foreign manufacturers in self-defence to equip their own establishments for making *faïence fine* and *englisches Steingut.*

CHAPTER IV

China: The Invention of Porcelain

THE Chinese have proved themselves the greatest masters of the potter's art. Their porcelain has been a contribution to general culture with which their influence has penetrated throughout the world. Two causes may be named as having given them this advantage. In a contiguous region of the world—the East Indian archipelago—their neighbours were peoples so little civilized that they were able to make pottery either not at all or so frail and undurable that, as soon as navigation had brought them within reach of the mainland, they provided a ready market for the distribution of the thoroughly efficient Chinese goods. The second cause was the almost supernatural attractiveness of the white porcelain in itself, especially when enhanced with decoration in blue, which caused it to be welcome, like Chinese silk, even in the homes of ancient civilizations which had themselves been producing good pottery for thousands of years.

"Blue-and-white" is the most familiar and the most ubiquitous kind of Chinese porcelain, but it has no very long history; the lovely cobalt pigment was known in the West before it was introduced into China. It was with other classes of ware that the Chinese potters first spread their trade into the Western world.

About fifteen years ago exploration in the far Western Chinese province of Kansu disclosed the existence of a splendid type of earthenware made without the help

of a wheel and attributable to the third millennium before Christ. It consists chiefly of large burial urns, usually more or less of inverted onion shape with two small loops projecting at the widest point, of buff ware painted in dark red, black and purplish brown with rhythmical swirling wave-motives of magnificent vitality, or leaf designs in reserve on a dark ground. There is no evidence, however, that the wonderful art displayed in these prehistoric urns had any long continuity. Pottery ceased to be important in China, and in the earlier dynastic periods bronze was the mistress art of the country, to such a degree that the unglazed earthenware vessels that have been found in tombs of these ages obviously follow in form bronze originals.

At some unknown date, perhaps as early as the third century but certainly many centuries after glass and glazing were known in Egypt, the Chinese also began to use glaze on their pottery. Tombs of the Han dynasty have yielded large quantities of a type of hard red ware generally with ornament moulded in relief and stuck on to the surface before the application of a glaze, which is either brown or stained deep green with copper; they include not only vessels "thrown" on the wheel (as a rule influenced in shape by bronze) but also models of animals, buildings and utensils in immense variety, intended for the equipment of the dead. The glaze on these wares contains lead and is in fact so similar to the green and yellow glazes on a certain class of Roman pottery appearing about the time of Christ (compare p. 22) that it was at one time assumed that in this matter the Chinese were borrowers from the West; through the overland silk trade which gave the name of their race to this material in Greek, Latin and derivative languages, they were already in contact with the Roman world. Recent discoveries, however, as has been hinted above, seem to show that this theory is untenable, and the question

remains whether, even if the Chinese did learn from Egypt, directly or indirectly, the use of glaze, they may not claim for themselves the credit for this particular type of glaze containing lead, with its advantage of easy fusibility and ready adhesion to the " body ".

These lead-glazed earthenwares would hardly have brought to the Chinese their supremacy as potters; this they owe to their invention of porcelain. Porcelain is a composite type of pottery containing two essential ingredients, china clay and china stone, sometimes known by their Chinese names as kaolin and petuntse. Kaolin is the plastic element, petuntse the fusible which causes the clay particles to coalesce in a single homogeneous mass. Porcelain as we know it to-day is generally white, translucent and resonant, but a " body " including all these characteristics was the result of a long evolution. The rudiments of porcelain are first seen in a type of porcellanous stoneware containing a clay akin to kaolin, one of its essential constituents. This ware was made in the district of Yüeh, in the coast province of Chekiang; it has a grey " body" and a clear watery or olive-green glaze similar to that of the later celadon wares (see p. 54). Examples of it that have been dug up include bulbous jars, ewers, water-pots in the shape of a toad, and small figures; some of these have designs incised or impressed with a roulette or " runner ", or applied reliefs similar to those on the lead-glazed Han urns. It has lately been plausibly suggested on stylistic grounds that this Yüeh ware was being made during the Han dynasty, as early as the first century after Christ.[1]

Hitherto it has been supposed that the earliest porcellanous ware was represented by some large urns conspicuous for their fine shape, with applied reliefs and free incised ornament under a greenish-grey glaze, the upper part being sometimes left bare of

[1] By A. D. Brankston, " Yüeh ware of the ' Nine Rocks ' ", in *Burlington Magazine*, LXXIII, 1938, p. 257.

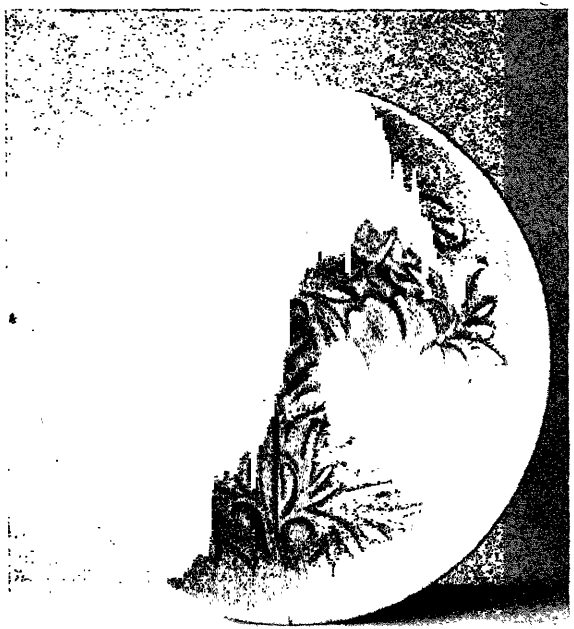
glaze and fired to a deep brown on the surface; these can be assigned to the third century A.D.

In the period of the T'ang dynasty (A.D. 618–906) we encounter for the first time a pure creamy-white translucent porcelain. This was a time in which Chinese literature and art were at their highest level and commerce flourished, so that there was an extensive trade in pottery amongst other goods from China to Western Asia. The evidence of dateable temple treasures in Japan brought from China, and finds on the site of Samarra on the Tigris (the residence city of the Caliphs of Bagdad, occupied by them for a limited time only in the ninth century and then abandoned) have made it possible to identify many of the wares made in the T'ang period. The latter include, besides white porcelain and porcellanous ware of the Yüeh type, fragments of pottery which is obviously a local imitation of a type of soft earthenware found in abundance in graves in China which can be dated to the same time. This T'ang earthenware takes the form not only of vessels but also of human and animal figures (particularly camels and horses) made specially for funeral purposes and showing in their lifelike modelling a high degree of skill and close observation of nature. The jars and other vessels display two kinds of decoration, in both of which the same coloured lead glazes are used. On one of these, much imitated in the Near East and in Central Asia, the colours—blue, orange, green and white, used singly or in combination—are allowed to run in streaks or splashed on with a mottled effect; sometimes these mottled glazes are applied over rough scratched ornament of the *sgraffiato* order (compare p. 27) but without any regard for congruity therewith. In the second, more splendid type a design is engraved on the surface of the ware and the glaze pigments are then laid on in ordered harmony within these outlines; one of the finest known examples of this class is a dish in the Victoria and Albert Museum with a stylized

lotus-flower in the middle surrounded by formal clouds on a dappled background. It may be here pointed out that the Buddhist religion, introduced from India, received official recognition in China in A.D. 67 and continued to flourish under the T'ang emperors, spreading Buddhist symbolism, so that the lotus became an all-pervading motive in art. Traces of the Hellenistic influence which Buddhism carried with it eastward may also be seen in T'ang pottery as, for instance, in the adoption as a form of the Greek *œnochoe* (compare p. 14).

The Golden Age of Chinese pottery was the period of the Sung dynasty, synchronizing with the earlier Middle Ages in Europe. Porcelain then attained as a form of art a perfection which later technical refinements and developments never enabled it to surpass. It is the custom to classify the Sung porcelains in groups named after their places of production, but recent excavations tend to show that many of the types were not confined to any one locality but were the common stock of all, though they may have originated in the places from which they take their names. In all the best may be seen the same incomparable sensitiveness to formal values, combined with technical refinement of the highest order. Sung is the age particularly of low-toned glazes of exquisite texture carried by shapes displaying the subtlest beauty of profile.

Foremost of the Sung porcelains in their wide distribution outside China are the types developed from the Yüeh ware of earlier times, with a glaze ranging from sea-green to olive-green, which are now known in Europe as celadon (apparently for no better reason than that an actor impersonating a character of that name on the French stage in the eighteenth century wore a costume of this colour, which imported Chinese porcelain had then made fashionable). Celadon glazes undoubtedly won their never diminished popularity



A. Porcelain bowl, Chinese, Lungch'üan
(*Page 55*)

B. Stoneware jar, Chinese, Tz'ŭ-chou
(*Page 58*)

(Victoria and Albert Museum)

PLATE VI

in China because they gave to porcelain the outward semblance of the highly-prized green jade; in India and other countries celadon ware was much in favour for its reputed antitoxic quality, being supposed to break in pieces if poisoned food was served in it. The first celadon was made in Sung times at Lungch'üan in Chekiang province, and few things are lovelier to sight and touch than some of the Lungch'üan dishes and bowls with designs of fishes, lotus-flowers or birds, engraved with exquisite mastery before the application of the soft moss-green glaze (Plate VI, A). Another well-marked kind was made apparently somewhere in Northern China and was much exported to the neighbouring kingdom of Corea, where it was imitated by native potters. It gave rise in Corea to two varieties of technique much practised in the fourteenth and fifteenth centuries; one shows flowers or birds painted in a thick greenish-black pigment under the celadon glaze; in the other we find a technique apparently learnt in China and passed on afterwards to Japan but characteristic above all of Corean porcelain—that of inlaying the decoration by engraving it in the paste and then filling the incision with black and white clay, the whole finally receiving its outer dress of transparent green glaze. Celadon porcelain imitating the Chinese was also made about the same time in Siam and a good deal later in Japan, whilst exports of it to the West prompted Egyptian and Persian potters to emulation with a celadon-coloured glaze on their coarse-bodied earthenware.

Most highly prized of the Sung porcelains in China itself were the kindred Ju and Kuan wares, made in the twelfth century for Imperial use. They show pale lavender, greyish or greenish glazes, in the case of Kuan thick and rather opaque, with a wide " crackle " of fissures caused by the unequal shrinking of the " body " and glaze during firing (fig. 6). Ko is another class of Sung crackled ware, but whitish to stone-grey

in colour and with crackle as a rule of much narrower mesh. These wares were for the most part devoid of decoration, so that their beauty of material and finish might make its appeal undisturbed. The large family of Ting wares, with a cream-white or pale straw-coloured glaze, includes many pieces which compete with the

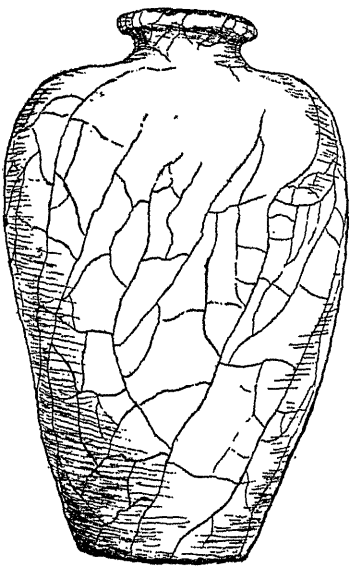


Fig. 6.—Porcelain vase, Chinese, Kuan ware (British Museum)

celadons and official wares for a high place in the artistic hierarchy. Like the celadons they often owe much of their beauty to the perfect composition and draughtsmanship shown in the lotus flowers, swimming ducks and other designs delicately engraved under the glaze; where reliefs produced by pressing in a mould have been employed, good as they are, they lack the spontaneity of engraving and fall into a lower category.

Less esteemed in China are the porcellanous stonewares known as Chün and Chien, the former with a glaze which varies from a fiery crimson to deep lavender-blue or greenish-grey (fig. 7), including also a type in which crimson markings, sometimes irregular, sometimes in the form of a flower or a butterfly, have been deliberately obtained in the field of pale blue. The Chien wares, so named from being made amongst other places in the coast province of Fuchien, are no less varied in character, though in form consisting chiefly of conical or rounded tea-bowls. The archetype has a

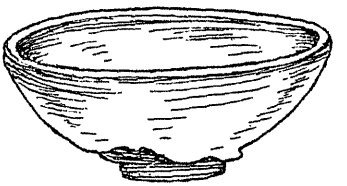


Fig. 7.—Stoneware bowl, Chinese (Chün type)

thick deep brownish-black glaze usually marked with light brown flecks which have caused it to be likened to the fur of a hare. Amongst many other types are a plain dark brown, a rich dead-leaf brown, and a black showing thickly-clustered silvery spangles like spots of oil.

Lastly we come to a striking class of heavy, buff stoneware of vigorous masculine quality, made for more ordinary use. This ware is called after its places of production, Tz'ŭ-chou, in Chihlih province. It is seen mostly in massive bulbous jars or in large vases often of the slender egg-shape with small funnel neck made to contain a single spray of plum or other blossoming tree. The "body" is buff and the decoration various. In one class, perhaps the finest, the whole surface is thickly covered with the glaze, which fires to a dense dark brown, and the design, such as fishes or a frieze of lotus-flowers, is deeply engraved through

the glaze before the ware is sent to the kiln for firing; the result of this technique is that, with the fusing of the glaze, the decoration stands out in slightly convex relief in the glaze-colour against the matt buff of the ground (Plate VI, B). In other kindred wares the ordinary *sgraffiato* technique is employed. Others again show sprays of peony or other flowers painted in black with the strong but subtle brush-strokes familiar in Chinese calligraphy, under a glaze which may be pale cream-colour or stained with copper to deep green; this class recalls the painted Corean celadon wares to which reference has been made above. Lastly, we occasionally find red and green enamel pigments, fixed at a second, low-temperature firing, added to these designs in black.

The Tz'ŭ-chou potteries have continued producing until the present day, but never again with the vitality shown in the wares made there (as proved by dates occasionally inscribed upon them) under the Sung emperors and during the short rule of the Mongol dynasty, known as Yüan, by which the last of them was conquered in 1279. Tz'ŭ-chou ware is of peculiar interest as the only important class of Sung pottery showing extensive use of painting as decoration. In ceramic history it is important as the forerunner of "blue-and-white", the dominant type of Chinese porcelain of modern times, which seems already to have made its appearance on the scene before the fall of the Sung dynasty; but this is a development which will be dealt with in due course. We must relate first how glazing and painting were first combined, in Egypt, the motherland of the art of glass.

CHAPTER V

Egypt and the Near East; Glaze and Painting

SOMETHING has been said already (p. 5) of the unglazed painted earthenware made in Egypt in pre-dynastic times. We must now take up the wonderful glazed ware which figures so conspicuously amongst all finds in Ancient Egyptian tombs. Glass was an Egyptian invention, and even before the beginning of the historic dynasties it seems to have occurred to the Egyptian craftsmen to apply it in the form of glaze to articles modelled or moulded in clay. Thus what is known from its colour as "Egyptian blue-glazed ware" came into existence. The oldest examples of it are moulded figurines of animals and birds, beads and other small articles; only at a later stage was it used on vessels. The glaze is a silicate of soda and lime; such an alkaline glaze could only be applied to a "body" containing itself a large proportion of silica mixed with the clay. In a material with so little cohesiveness, "largely" (as it has been said [1]) "sand held together by a little clay and glass," wheel-thrown pottery could not be made; the articles could only be kneaded together or pressed into moulds, perhaps held together by some gummy substance until the enclosing glaze had been fused into hardness by fire. Nevertheless in course of time quite large objects as

[1] By William Burton, *Encyclopædia Britannica*, 11th ed., Vol. V, 1910, "Ceramics", p. 706.

well as many of great beauty were made in this manner. One of the most astonishing achievements in blue-glaze is the giant sceptre of the Eighteenth Dynasty in the Victoria and Albert Museum, inscribed with the name of King Amenhotep II (1449–1423 B.C.), which stands seven feet high. For beauty may be named the slender pale blue chalice of the Nineteenth Dynasty (about 1350—1200 B.C.) with bowl moulded in the shape of a lotus-flower, in the Ashmolean Museum, Oxford. Remarkable also are the round-bottomed bowls painted with fishes and lotus-flowers which began to appear during the Thirteenth Dynasty (eighteenth century B.C.).

The Egyptian "blue glaze" is derived from copper and varies from a very pale sky blue through intense turquoise to a greenish tone. Already under the first of the dynastic kings, Aha or Menes, we find manganese, producing a purplish-black colour, in use as a pigment for inscribing names in hieroglyphics on vases; they are painted on the blue glaze before it is fired, fusing into the surface of the glaze with the heat of the fire; this is an anticipation of the method employed in painting the tin-enamelled earthenwares of later times, with the difference that in the earlier case the glaze is translucent, in the later opaque. The same technique is employed in the painted bowls of the Thirteenth Dynasty mentioned above and on the remarkable figures of hippopotamuses of somewhat earlier date, with the reeds amongst which they are lurking painted in purple on their bodies. During the Eighteenth Dynasty (from about 1580 B.C.) we find other coloured glazes in use besides the light blue, including dark blue from cobalt, violet, red, yellow, apple-green and white. Under the Ptolemaic rulers and in Roman times the "blue-glazed" technique continued on traditional lines, but the wares underwent a change of character in design under Hellenistic influence. Noteworthy are the bowls and vases with

figures of deities or animals modelled in bold relief; particularly splendid in effect are certain jars, attributed to the first century after Christ, with festoons of laurel-leaves applied in sharp projection on the body and coloured with greenish-blue glaze in contrast with the rich plum-purple glaze of the ground.

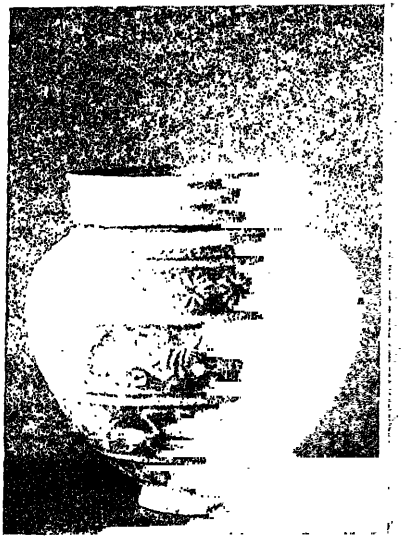
The history of pottery in the Near East during the domination of Rome and the Eastern Empire is obscure, but although tangible proofs are few, there can be no doubt that in Egypt and Syria the technique of "blue-glazed ware" was kept alive. Although as we have seen (p. 22) various kinds of lead-glazed ware were also produced, the characteristic type of pottery throughout the Near East since the rise of Islam in the seventh century has been a ware of more or less coarse sandy "body" covered with a transparent siliceous glaze, with decoration either engraved under the glaze or painted. A "body" of this nature is of indifferent plasticity and incapable of being thrown on the wheel in thin or subtle shapes, but the siliceous glaze, as Ancient Egyptian examples amply prove, can be endowed by staining oxides with unsurpassed richness of colour, and lends great brilliance and intensity to underlying pigments seen through it.

Unbroken specimens from the earlier centuries of Islam are not numerous, but the character and diversity of the wares then made are proved by the thousands of potsherds found at Fostat (Old Cairo) and in excavations on many sites in Syria, Mesopotamia, Persia and Central Asia. Amongst these sites Samarra, the one-time residence of the Abbasid Caliphs, near Bagdad, which has already been mentioned in connexion with Chinese porcelain, is of peculiar interest to the archæologist because it is known that the place was only occupied for a limited period falling within the ninth century. Classification by localities, unless "wasters" from kilns proving local origin are amongst the finds, is a matter of difficulty, because there was traffic to and

fro throughout the Islamic world, from Spain to Samarkand, and the same varieties of wares occur in widely distant places. There is evidence also to prove that certain techniques were practised with almost indistinguishable results in more than one country.

The finds at Samarra, dating as we have seen, from the eighth century, give us the earliest certain proofs as to Islamic pottery, and here already we find in practice a technique which was to have an immense expansion in later times. A transparent siliceous glaze necessitates, for fine brushwork, a previous coating of the coarse "body" with a layer of white pipeclay to provide a good painting-surface, but an alternative procedure, already in evidence amongst the wares dug up at Samarra, was to add to the glaze itself some substance which would render it opaque and white, so that the painting could be carried out upon it, before firing, instead of under it (that is, before its application). In later times the opacifying material employed was oxide of tin, the use of which seems already to have been known in the sixth century B.C., if the enamel on the bricks at Babylon and Susa is of this order; a glaze of this nature is generally called a tin enamel, but in the opaque glaze of these earlier wares no trace of tin has been discovered by analysis. The painting on the opaque-glazed earthenware from Samarra is of two kinds, and the fact that on rare examples both are combined shows that both types of ware were made in the same workshops, which, it has been suggested, are more likely to have been in the great city of Bagdad, not far distant, than at Samarra itself. In one class the designs are in cobalt blue, often alone, but sometimes combined with bright green; purple pigment also occurs. The motives of decoration employed include rosettes, wreaths of laurel and other foliage designs in which a late Hellenistic influence seems to be traceable.

The second class of painted ware from Samarra



A. Vase, blue-glazed ware, Ancient Egyptian (Mr. D. Kelekian)
(*Page* 60)

B. Earthenware jug, Turkish, Isnik (Victoria and Albert Museum)
(*Page* 67)

C. Earthenware bowl, *minai*, Persian, Rages. (Victoria and Albert Museum)
(*Page* 64)

gives us the earliest certain examples of painting in metallic lustre pigments, the iridescent colours which are the glory of the lustred wares made later in many parts of the Near East as well as in Spain and Italy. Lustre pigments are laid on the glaze or enamel when it has already been fired; they require for their fixing and for the development of the wonderful rainbow hues resulting from the extreme thinness of the metal deposit, a further firing and submission to a dense smoke. The metals used are silver, giving brassy, golden or lemon-yellow tones, or copper, producing brownish tones or brilliant ruby-red; the two are sometimes combined. Lustred wares exactly like those from Samarra have been found in Egypt and at Susa, in Persia, and the question whether distribution from one centre, or imitative production in several, is the explanation of this fact is one which still exercises archæologists. In the earlier lustred wares we find curious tree and leaf designs against a background of cells containing spots or striped patterns suggestive of interwoven palm-fronds; in these, two tones of lustre, olive-green and brownish, are often combined. Later there developed designs, including human figures and animals, in "contour panels" (compartments, that is, following the outline of the figure) reserved in a diaper of large spots; this system of contour panelling continued long in favour with Islamic pottery-painters and was passed on in turn by them to Italy. One of the most striking of these lustred wares is a bowl in the Louvre painted with a mother camel suckling her calf.

Lustre painting was practised with splendid effect in Egypt, especially in the tenth and eleventh centuries under the rule of the Fatimite sultans. The designs range from birds and animals, to lute-players and other human figures; a fragment in the Arab Museum at Cairo with a head of Christ, and a bowl in the Kelekian Collection with a figure of a priest swinging a

censer, show that such wares were sometimes made for Christian use and probably by native Copts. In the twelfth and thirteenth centuries we find lustre-painting of a high order in Persia, at Kashan and at Raay (the Rages of the *Book of Tobit*[1]); highly characteristic are the bowls and dishes with cavalcades of huntsmen or princely figures squatting on thrones between female attendants (Plate VII, c). Exactly similar designs were painted, also over an opaque enamel,[2] in polychrome pigments; these *minai* wares, as they are called, are closely akin to the miniatures in Persian manuscripts of the period.

At Rakka in Syria about the same time a somewhat different class is found in which the lustre pigment, usually brownish crimson in hue, is applied over a thick transparent siliceous glaze, often of distinct greenish tone. The designs show a boldness and vigour which distinguish them from the suave, alluring compositions of the Persian painters; they are repeated also on another class of ware from Rakka, with painting in cobalt blue and black on white slip under the glaze. Such black-and-blue under-glaze painting became common also as the thirteenth century advanced, and in the fourteenth, in Egypt and Persia, and in the fifteenth century monochrome blue designs executed in the same manner show not only in technique but also in their motives the influence of Chinese blue-and-white porcelain, which was then being brought in shiploads to Western Asia and Africa. Mention must here be made also very briefly of the splendid painting in dense black under a transparent glaze (colourless, or dark blue, turquoise, green or purple) of which many of the best twelfth century potsherds from Fostat are examples, whilst a similar technique in Persia (at Kashan) produced some of the loveliest wares of the

[1] See R. Ettinghausen, "Evidence for the identification of Kāshān pottery", in *Ars Islamica*, III, p. 44.

[2] Analysis of a sample of *minai* ware from Raay in the Victoria and Albert Museum has shown that the enamel contains tin.

thirteenth century (fig. 8); designs, such as that of a running man on a bowl at South Kensington, are thickly painted in black, with deeply incised details, under a deep turquoise glaze, or again the whole surface of a jug or bowl may be coated with black slip and the decoration—an Arabic inscription or merely vertical stripes—cut away through it so as to show blue through the glaze. Egyptian and Syrian wares of this class as well as lustred ware made their way to Italy as early

Fig. 8.—Earthenware bowl, Persian (Victoria and Albert Museum)

as the twelfth century, brought either by traders or by returning Crusaders; they were used as architectural decoration, either in the brickwork of church towers and gables or as elements in mosaic on screens and pulpits.[1] They were not without influence on the design of the Italian wares known as maiolica (compare p. 85). Lastly there are the wares made in Egypt and Persia in the twelfth and thirteenth centuries, doubtless under the influence of imported Chinese celadon and Ting ware (see p. 56), with designs boldly carved into a fine white "body" and then, like the painted wares, covered with a rich transparent coloured

[1] Compare G. Ballardini, "'Bacini' orientali a Ravello", in *Bollettino d'Arte*, 1934, p. 391.

glaze; here whilst animals and occasionally human figures play a conspicuous part, nothing is finer in effect than the employment, against a background of leafy scrollwork, of Arabic inscriptions in the noble type of lettering known from the city where it originated as Cufic.

During the fifteenth century Near Eastern pottery in general was at a low ebb, but it had a splendid rebirth in the sixteenth century, first in Turkey and somewhat later in Persia. The centre of production of the finer Turkish wares was Isnik (the Nicea of the Creed), in Anatolia; most of the craftsmen who made them were probably not Turks but Armenians, and there is record of potters introduced from Persia by the Sultan Selim I, in 1514. At Nicea was made, for some decades beginning towards the end of the sixteenth century, a fine earthenware with a thin glaze over a milk-white slip giving a porcelain-like appearance, with painting in cobalt blue. The motives of design consist chiefly of interlaced arabesques or Arabic inscriptions in Cufic characters set amongst an all-over pattern of flowers and leafy scrolls in which Chinese influence is unmistakable. Some of the finest examples are giant bowls on a high foot, like large salad-bowls. Blue-and-white ware of this kind was formerly attributed, owing to misinterpretation of an inscription, to Kutahia, a city which in the eighteenth century produced earthenware of very different character, largely for the use of Armenian Christians.

Soon after 1500 more naturalistic flowers begin to make their appearance in the decoration, and new colours, olive and emerald green, pale turquoise blue and deep manganese purple, with black, are added to the blue hitherto used almost exclusively, and the blue takes on a more intense tone, whilst the exquisite porcelain-like texture of the ware continues. Decoration begins to be predominantly floral and to

include, besides palmettes derived from the Chinese lotus, others such as tulips, hyacinths, roses and carnations, in forms only slightly modified from those of nature. This class of ware, made about the middle of the sixteenth century, had a strong influence, both in colour and design, on the decorative compositions of William Morris and his potter-collaborator, William De Morgan, to whom it was known, in accordance with the conceptions of their time, as Persian; a subsequent attribution, equally mistaken, was to Damascus, where later in the sixteenth century wares were made with kindred design but less finely painted and covered with a thick uneven glaze, often marred by the greenish tone which is equally characteristic of the mediæval Syrian wares from Rakka and elsewhere. The great bowls continued to be made at Isnik, with the new themes and colouring; of these, however, no finer example could be named than the lamp with a date corresponding to A.D. 1549 from the Mosque of Omar at Jerusalem, now in the British Museum. On this lamp we still have arabesque interlacements combined with inscriptions playing the chief rôles, with small tulips in narrow bands as accessories.

From this "purple" family there blossomed at Isnik, in the second half of the sixteenth century, the magnificent ware so long known by a misnomer as "Rhodian" (Plate VII, B). Its chief glory is the use, in combination with deep blue, emerald green and black, of a vermilion red never since surpassed in brilliance, obtained from an earth of which the quarry seems in course of time to have been exhausted; occasionally the slip providing the ground for this painting is stained light or dark blue or salmon-colour, in which case white slip pigment is added to the palette. Flowers, cypress-trees and long serrated leaves, arranged sometimes symmetrically, always with well-balanced rhythm, still dominate the painters' repertory, but birds and animals are occasionally found, and

rarely, in late examples, human figures; at the same time some of the most effective designs are entirely conventional, such as well-graduated scale-pattern and arabesques. The shapes of the wares include dishes, jugs, tankards and long-necked bulbous bottles, always of substantial build well suited to the graceful but firm lines of the painting. As the seventeenth century advanced there was a perceptible falling off in the Isnik pottery; designs became weaker and confused and the colours no longer had the purity which at their best lent them such distinction.

The Persian renaissance began in the sixteenth century, when there was a revival of lustre painting widely different in character from that of the mediæval workshops. The articles so decorated were small—cups, rose-water bottles, spittoons, and flower-vases with several apertures—and the glaze was often stained to a beautiful intense blue on which the rainbow hues of the metallic pigment show up with brilliant effect; amongst the designs irises, small cypress-trees and willows are conspicuous. In the reign of the enlightened Shah Abbas the Great, the contemporary of Queen Elizabeth and James I, Persian art in general was at a high level and there was a wonderful development of pottery, shown in wares of fine quality and great variety. Conspicuous amongst them is the fine blue-painted earthenware, sometimes partly translucent, made in emulation of the Chinese porcelain then being brought in large quantities to Persia. Literal copies are the exception; as a rule Chinese themes are adapted in a romantic mood very different from that of the originals. The sinuous rhythms of Persian art are seen at their best in depicting the stealthy movements of the cheetah or the nervous spring of the gazelle, or in occasional renderings of human figures in subjects entirely free from Chinese influence.

It would be impossible to survey in detail the many beautiful and varied types of ware made in Persia in

the seventeenth century. Besides the large class of "blue-and-white", the designs on which are often outlined in black, there is another painted class in which Chinese elements are seldom present; here, in addition to a vivid cobalt blue, thick buff and bright red slip pigments are used (the latter almost rivalling the scarlet of the Isnik wares). Sometimes a coloured slip, blue-stained or buff, is laid over the surface as a ground for the painting of such themes as peacocks or gazelles confronted on either side of a cypress or a group of cornflowers, in opaque white and other colours. In a lovely variety, of which a deep blue rice-dish in the Victoria and Albert Museum engraved with a branch of willow is an example hardly to be surpassed for its restrained effectiveness, the decoration is not painted over the coloured slip but cut through it so as to reveal the underlying white "body", in the manner of the lead-glaze *sgraffiato* wares (compare p. 27).

Entirely different in technique are the wares with monochrome glazes, deep cucumber-green, olive-green, celadon, turquoise or dark blue and rich amber-yellow, made in emulation of "self-coloured" Chinese porcelain (compare p. 78); sometimes these have moulded relief designs of plant-forms and animals (a cheetah in leash with its keeper, for instance) displaying to the full the simplified rhythms characteristic of Persian art. In all these later Persian wares the glaze is of the predominant Near Eastern class, a glassy siliceous glaze requiring a considerable proportion of sand in the composition of the "body".

CHAPTER VI

Far Eastern Painted Porcelain

CHINESE porcelain in its modern and most familiar form began to emerge about the end of the Sung period. Specimens painted in blackish cobalt blue—with ducks swimming amongst lotuses and other Buddhist themes—under a greyish-white glaze of semi-opaque, milky appearance, have been attributed to this period on the evidence of finds in graves believed to date therefrom. In the brushwork they are closely akin to the painted Tz'ŭ-chou stoneware of Sung and Yüan times (compare p. 57), the pigment being freely applied without preliminary outlines (fig. 9). Whatever their age, they are the earliest examples of the use in China of cobalt as a pigment for graphic designs; it had been so used, as we have seen (p. 62), in the Near East in the ninth century, whilst its appearance about the same period in China as a material for staining glazes had been anticipated long before in Eighteenth Dynasty Egypt. The best quality of cobalt was known in China as "Mohammedan blue", and the source from which it was obtained, when the trade routes were not interrupted by war or other commotions, was somewhere in Western Asia, probably in Persia or Baluchistan. All uncertainty as to date disappears with a pair of tall blue-and-white altar-vases, in private possession,[1] which are decorated with the Imperial dragon and phœnixes, and bands filled with lotus and

[1] Reproduced in Hobson, Rackham and King, *Chinese Ceramics in Private Collections*, London, 1931 (fig. 292).

other flowers; these vases have inscriptions dating them to the year A.D. 1352, when an emperor of the Mongolian Yüan dynasty was on the throne of China. Soon after, in 1368, this dynasty was displaced by the native Ming dynasty, which endured until, in 1643, it was in turn overthrown by Manchu conquerors.

One of the earliest acts of the first Ming emperor,

Fig. 9.—Blue-and-white early ewer

Hung Wu, was the establishment of an Imperial porcelain factory in the ancient pottery town of Ching-tê-chên, near the Poyang lake, which empties into the Yangtse some 450 miles above Nanking. This factory, intended for supplying the needs of the Court at Nanking (later transferred to Peking) became the model for technique and style in the scores of other workshops carried on in the town. A word may be said here as to the chief characteristics of Ching-tê-chên porcelain. It is pure white and translucent, with a colourless glaze so nearly akin in composition to the

" body " that, in firing, the two coalesce where they are in contact, without any sharp division; to this the ware owes its pellucid, snowlike brilliance and the blue pigment its depth of tone. For the colouring of the ware three principal classes of technique are employed. Certain colours will withstand the high firing-temperature of porcelain and can therefore be laid as pigments on the unfired surface of the " body " before application of the glaze, or used to stain the glaze itself, " body " and glaze being then submitted at a single operation to their only firing in the kiln; these colours include besides the cobalt of " blue-and-white ", a celadon-green and a russet (" dead-leaf ") brown, both obtained from iron, and a crimson derived from copper, which in certain conditions of temperature may turn to liver-colour or warm grey, or develop green markings which have been likened to those of the bloom on a peach. It may here be remarked that the unfired surface, whether the " body " itself, as in Chinese porcelain, or a slip or tin enamel as on the various classes of Near Eastern earthenwares described in Chapter V, and their European descendants, is porous and absorbent; painting on it is consequently like painting on blotting-paper and calls for long practice and dexterity, for when once a line has been made with the brush there can be no erasure or wiping out. A second range of colours are in the nature of stained glaze-pigments containing lead in their composition; these are laid on the ware when it has already been fired to what is known as the " biscuit " state, and require a further firing at a moderate temperature for fixing them. Pigments of this order were often employed in Ming times over a " body " which is in the nature rather of stoneware than of true porcelain. The third principal class of pigments consists of those known as " enamel colours ", that is to say, mixed with a soft glassy flux, easily fused, and applied over the usual colourless glaze after the first firing of the ware; like those of the

last class, these colours, which may also be used as monochrome enamel-glazes, necessitate a second firing, but at a very low temperature in what is known as a "muffle" kiln. Gilding is fixed in porcelain in the same manner.

All these various processes were in practice at Ching-tê-chên as early as the fifteenth century and have continued so to the present day. Though later times witnessed many advances in technical skill and a great expansion in the repertory of designs available to the painters, no period has shown more consummate artistry than the short reign of the art-loving Hsüan Tê (1426–1435). Specimens of this time are of great rarity (Plate VIII, A), but many are to be found inscribed under the base with the six-character mark of Hsüan Tê's reign; the same applies to that of another famous fifteenth century emperor, Ch'êng Hua. The explanation of this is that it became the custom in after times to use the names of famous bygone emperors not only on wares reproducing the styles of their periods but indiscriminately, as a consequence of the Chinese veneration for ancestors and the men of old. Thus the names of these two early Ming emperors are common on eighteenth century porcelain, whilst the occurrence of that of the eighteenth century K'ang Hsi must also be viewed with suspicion, as it has been very popular with the potters of Ching-tê-ch'ên on wares of inferior quality made in quite recent times.

The Ming wares cover a vast range of types; to pass them all in review here would be impossible. At one end of the scale we have the delicate little bowls and wine-cups of the fifteenth century, painted with tiny figures in a mountain landscape or lotus scrolls or a few scattered blossoms and butterflies, either in an even wash of soft pale blue within a linear outline, or in the "five-colour" scheme consisting of the same under-glaze blue and four enamel colours—

in rich coloured glazes—dark blue, turquoise, deep aubergine-purple, and straw-yellow. The designs—for which lotus and chrysanthemum sprays or scenes from the life of mountain philosopher-hermits were greatly in favour — are either engraved in the paste or laid on in "slip" in slightly raised outline, like the metal strips in *cloisonné* enamel; the purpose in both cases is to prevent the overflow of the readily fused glaze-pigments applied as flat washes within the outlines. This technique was especially and suitably chosen for making large heavy articles such as wine-jars, flower-pots and barrel-shaped garden seats; the finest of these date from the fifteenth century.

The troubles which befell the empire in the seventeenth century account for a decline of quality in the latest Ming wares, but there was a glorious revival before the century closed in the reign of the second emperor of the Manchu dynasty, the great K'ang Hsi (1662–1722). When peace had been restored in the realm K'ang Hsi turned his attention to the encouragement of every form of artistic activity, and one of his foremost concerns was the imperial porcelain factory. This he rebuilt and placed under the charge of an energetic director whose business it should be to revive and surpass the splendid achievements of the past. The result was an enormous expansion of the industry in general, so that the number of kilns at Ching-tê-chên is said to have increased tenfold.

In perfection of technique K'ang Hsi porcelain at its best represents the peak of ceramic attainment. Past processes were revived and many new ones introduced, but technical excellence was apt to be sought at the cost of artistic quality. Shape and design tend to be obscured by an excess of meticulously painted detail. In the painting of birds and flowers there was an increasing trend towards naturalism. In landscape the K'ang Hsi painters were more ambitious than their Ming predecessors; some of their most

notable successes were in this branch, in which they followed not so much earlier modes in porcelain as the pictures on silk of the great Sung school of landscape-painting.

Under K'ang Hsi there was an enormous development of "blue-and-white". The cobalt pigment is very various in tone and sometimes surpasses in the purity of its intense sapphire hue anything attained before; it was laid on, not in even washes within darker outlines as in Ming times, but in graded tones to which the light penetrating the glaze gives an effect of throbbing vitality. It is seen at its best on the wrongly so-called "hawthorn jars", similar in shape to the common ginger-jars of the modern grocer's shop. They were made to contain New Year's gifts of tea or sweetmeats and were appropriately decorated with the emblems of that season (falling in March by the Chinese calendar)—branches of blossoming plum (not may) against a blue ground with a network of lines intended to represent the cracking ice of winter departing. This is only one of the immense repertory of designs at the disposal of the porcelain-painters. Some were developed, and many new shapes were introduced, specially for the taste of European buyers within whose reach the wares were brought chiefly by the enterprise of Dutch merchants; in due course both shapes and designs were copied or travestied in the European factories. Among the types so made for the western market are the vases in sets of five—*garnitures de cheminée*—consisting generally of three baluster vases with lids and two beakers to match. For these and for tea-table wares a design very popular in Holland consists of slender figures of ladies standing alone, in panels of lotus-petal shape with sprays of flowers in intervening panels; they were known in Dutch as *lange leisjes* ("gawky lasses") and in England by corruption as "Long Elizas".

The great glory of the imperial factory in this reign

was undoubtedly the enamel-painted porcelain. The more numerous class is that with over-glaze painting, in which colour effects of unrivalled brilliance were attained. The palette of the Ming "five-colour" porcelain was extended to include many intermediate shades, and under-glaze blue was supplanted in the latter part of the reign by a blue enamel, sometimes inclining to a violet tone. The design was first painted in black outline—not, as formerly, under-glaze blue—within which the enamel pigments were afterwards applied. Green of varied shades dominates the scheme, whence the term *famille verte,* the name given by French connoisseurs, is commonly used to describe this whole class of porcelain. The colour-scheme is seen at its loveliest in compositions of flowers and birds, but it was employed for subjects of every possible kind including illustrations of Chinese romances and plays, often crowded with figures in expressive and animated gestures. Amongst the most charming of all *famille verte* motives are the exquisitely drawn figures of ladies in gardens, sometimes alone, sometimes playing with children (Plate VIII, B).

A second class of K'ang Hsi enamelled porcelain is that in which, following another Ming precedent, coloured lead glazes were used as pigments laid, not over an already fired colourless glaze like the enamels of the *famille verte,* but directly on the unglazed biscuit "body". The K'ang Hsi wares of this class mostly display a combination of various greens with yellow and mauve; the results are peculiarly happy when such a scheme is enlisted for rendering mountain landscapes. A famous group in this kind of technique is that of the vases, often of large size, with compositions mostly of flowers or blossoming trees standing out against an intense black ground; this lustrous black is obtained by laying a wash of the dry black pigment used also for drawing the outlines of the composition and then flooding it over with a transparent green.

One of the tasks set by K'ang Hsi to the imperial factory was the revival of the famous coloured glazes of Sung and early Ming times. Some of these "self-coloured" wares rank beside those of the *famille verte* as the finest achievements of the time. Foremost is the crimson derived from copper in tones ranging from powerful *sang-de-bœuf* to the soft green-dappled tones of "peach bloom" and the various shades of liver-colour; as in Ming times, the same colour was also used as an under-glaze pigment, now for the first time often in combination with cobalt blue and celadon green. Cobalt is present in the pale lavender-blue and *clair-de-lune* glazes; it was also sometimes sprayed on to the "body" through a gauze-covered tube, before the application of a colourless glaze, to form "powder blue", over which designs in gold were commonly painted. "Powder blue" is also seen on vases with panels reserved in white in which are flower or landscape paintings done in blue or in *famille verte* enamels. Excellent celadon green (often over engraved designs emulating those of Sung porcelain), "dead-leaf brown" and "mirror black" are other high-temperature monochrome glazes of the period. The gorgeous *rouge flambé* crimson mottled with purple was not introduced until the time of K'ang Hsi's grandson, Ch'ien Lung. The chief low-temperature glazes were imperial yellow, coral red, apple green and turquoise blue. Mention may be made here also of the plain white porcelain known as "blanc de Chine", varying in colour from ivory to pure snow-white; this was the speciality from the seventeenth century onwards of potteries at Tê-hua, in Fuchien province, one of the few centres which continued to make porcelain of fine quality after the concentration of the industry in early Ming times round the imperial factory at Ching-tê-chên.

K'ang Hsi was succeeded by his son Yung Chêng, who was followed after a reign of twelve years by Ch'ien

Lung; the last-named emperor abdicated in the 60th year of his rule, 1795, as an act of piety, to avoid out-reigning his illustrious grandfather. Under Yung Chêng and Ch'ien Lung wares of fine quality continued to be produced, and new processes were adopted, but whilst technical skill was maintained porcelain as an art declined. Careful copies of Ming blue-and-white and enamelled wares were made, especially by order of Ch'ien Lung, who was an enthusiastic admirer of ancient art. The only important innovation of the period was the introduction from Europe of a rose-pink enamel, which had already made its appearance shortly before the death of K'ang Hsi. It is seen at its best in the famous ruby-backed eggshell plates with paintings of ladies and children, cocks and hens, or flowers, enclosed by multiple diaper borders, sometimes of seven different patterns. The dominant pink has won for the enamelled porcelain of this phase the name of *famille rose*; in inferior quality made for export it was brought to Europe and faithfully copied, particularly in the English factories during their earliest stages. A new development was the establishment of enamelling workshops in Canton to which plain white porcelain was sent from the commercial factories at Ching-tê-chên to be decorated with heraldic and other designs, after patterns sent out from Europe through the agency of the various East India companies.

Japan stands to a large extent apart from the general trend of ceramic development. The Japanese were from early times enthusiastic admirers of ancient Chinese and Corean wares, not least of the more robust types of porcellanous stoneware; from this preference the native art in the sixteenth and seventeenth centuries tended towards the production in numerous small workshops of stoneware, in the form especially of tea-bowls and other vessels intended for use at tea-ceremonies and showing a strongly individual character.

A class apart is formed of bowls, mostly shaped by hand without the aid of a wheel, in a soft low-fired earthenware, either salmon-red or black, which owe their attractiveness chiefly to their subtlety of form. The fine Japanese stonewares are at their best in the little tea-jars, made at Seto and elsewhere, from the sixteenth century onwards, with dark brown glaze imitating that of the Chinese Chien ware (compare p. 57). Painting in under-glaze greyish blue or brown of grasses or other plant-motives, treated with the utmost simplification, appears on another type of Seto stoneware in the sixteenth century (Plate XIII, A). In the second half of the seventeenth century a fine stoneware with crackled cream-coloured glaze made at Kioto was chosen by two great artists, Ninsei and Kenzan, as the vehicle for their painting. For rendering such motives as snow-laden pine-branches, clusters of bamboo or blossoming sprays, they used either enamel colours or black, brown and white clay pigments (Plate XIII, B). Kenzan was followed by descendants adopting the same name, of whom the last died a few years ago, and the style of both artists has been imitated by hosts of less gifted painters.

Porcelain was first made in Japan in the sixteenth century. The manufacture was introduced from China, but did not become extensive till the next century. Chinese traditions were followed more closely in porcelain than by the stoneware potters. The chief seat of the industry in the seventeenth and eighteenth centuries was in the extreme south-western province of Hizen; the most productive kilns were at Arita, near the port of Imari, in the neighbourhood of which, on the island of Deshima, the Dutch East India merchants were allowed to establish a trading station in 1641. The earliest Japanese porcelain, of great rarity, is blue-and-white, adhering closely to Chinese models; in the seventeenth century over-glaze enamel-painting was introduced, and a style of design was inaugurated

by a master named Kakiemon which was destined to be carried on by descendants who took the same name.[1]

Kakiemon ware, as it is called, took the fancy of the Dutch traders and was sold by them to princely and other clients in Europe; fine specimens of it may be seen not only in the great collection formed about 1700 by Augustus the Strong of Saxony at Dresden, but also at Hampton Court. The painting is in a peculiarly gay and fresh palette of enamel colours, red, blue and pale bluish-green, with canary-yellow, lilac and black. The themes employed are various and charming; the most delightful are the simplest—pine, bamboo and plum-tree clustered together on a rock, a few detached blossoms and butterflies, a pair of quails amongst millet, squirrels beside a reed fence, little boys at play, or a solitary lady gazing at the moon. On porcelain made for export the tendency was towards more elaborate decoration, with panels reserved on diaper grounds; in spite of their pleasant colouring such wares are less alluring than those in which the exquisite quality of the porcelain material is allowed to be the chief attraction.

The name of " Imari ware " is given to another class of porcelain made at Arita, for the most part specially for export to Europe, with decoration in under-glaze blue usually of greyish or blackish tone, and red, green, mauve, and black enamels finished with gilding. The designs—vases of flowers, elaborate diapers, chrysanthemum badges, and occasional landscape or figure-scenes, are derived mostly from brocades and are quite alien to Japanese taste in ceramic decoration; they serve with their profusion to conceal the poor quality of the " body " and glaze. These patterns also were to a large extent imitated in Europe and even occasionally, with much more pleasing results, in China.

[1] See R. S. Jenyns, " The polychrome wares associated with the potters Kakiemon ", in *Transactions of the Oriental Ceramic Society*, XV, 1937–8, p. 21.

Of the many minor porcelain factories in Japan it would be impossible to speak here; brief mention must be made only of a heavy type made at Kutani, in the province of Kaga. Designs on old Kutani ware are mostly either in monochrome iron red or in a harmonious palette of enamel colours of great intensity—dark violet, deep green, yellow and black. The decoration—trees, fruit or flowers—is conceived in a mood almost of vehemence, in keeping with the massive quality of the ware and the powerful colouring.

A. Back of lustred dish, Spanish
(*Page* 85)
(Victoria and Albert Museum)

B. Maiolica plate, by Nicola Pellipario, Italian
(*Page* 88)
(Royal Scottish Museum, Edinburgh)

PLATE IX

CHAPTER VII

Maiolica, Delft and Faïence

MENTION has already been made (p. 65) of the painted bowls from the Near East used by Italian builders in the twelfth century and later to embellish their architecture, and there is evidence as early as the tenth century of lustred pottery imported into the south of Spain. From these beginnings grew the great art of earthenware with painting on a tin enamel in Spain and Italy, and later in other parts of Europe. Ware of this type was made also in Provence in the fourteenth century, and painted tiles with a tin enamel were used, and apparently made, at Utrecht in the same period,[1] but these seem to be isolated cases, unconnected with later developments in France and the Netherlands.

In the twelfth century an Arab geographer speaks of "golden" pottery made in Aragon which can hardly be other than lustred ware; this is the first clear evidence of such ware produced in Spain. In the fourteenth century we have the earliest tangible as distinct from literary documents. To this period belong the famous lustred vase in the Alhambra and the other rare examples of the same type scattered in various museums; they are all of considerable size, with pear-shaped body drawn almost to a point at the lower end, ribbed funnel-shaped neck and two handles rising from

[1] See *Faenza*, IX, 1921, p. 84; X, 1922, p. 25, R. de Cabrens, "La céramique gothico-mauresque dans le sud-est de la France"; *Faenza*, XXI, 1933, p. 131, F. W. Hudig, "Maiolica olandese del Trecento".

the shoulder and shaped like the fins of a shark. They are painted in golden lustre with intricate designs showing great variety in detail but certain elements in common, such as bands of Arabic inscription and interlaced arabesques; on the Alhambra vase pairs of confronted gazelles are introduced among the ornament. These vases were doubtless made at or near Granada. A lustred bowl in Berlin, with arabesque ornament of similar style, seems from an inscription on it to have come from Malaga.

In the fifteenth century the manufacture of lustred pottery became concentrated at Manises, near Valencia. A thriving pottery industry had long existed in the neighbouring town of Paterna, where in the fourteenth century enamelled earthenware was made with decoration of strongly Gothic character—human figures, birds, fishes and trees, amongst other motives—painted in manganese-purple, with copper-green for filling in details; the same technique was being used at the same period in Italy, whilst in Spain it survived into the sixteenth century, with considerable change of style, at Teruel, in Aragon. The Manises lustre ware quickly rose to the front rank of artistic importance and was so much esteemed that it was exported as far afield as England and Holland in the north and Cairo in the east; some of the finest examples were made to order for Italy, with shields of arms of Venetian and Florentine families. Drug-pots and large dishes make up a large proportion of the wares. The decoration is painted in lustre, at first brownish or golden, in the later period of a rich copper red, generally accompanied by blue. At first mock Arabic inscriptions repeating benedictory formulas played a leading rôle. Towards the middle of the fifteenth century various stock patterns were adopted, of high decorative value, based on the foliage and tendrils of the vine or bryony—especially on the superb dishes for Italian clients; in the best period these are often painted on the back with a large

eagle (the emblem of St. John the Evangelist, patron of Valencia), a lion, fleur-de-lys or other ornament (Plate IX, A) almost surpassing in beauty the decoration on the front. After about 1500 there was a marked change of character and a rapid artistic decline; the designs are sometimes embossed, and acanthus foliage showing the influence of the Renaissance is common. The virtues of later Spanish pottery are to be sought in wares of an entirely different character, made in various places but especially at Talavera, which became the chief centre of the industry in the country. After a period in which Italian influence is obvious, the Talavera potters in the seventeenth century asserted their native character in the production of earthenware which makes up by the almost savage vitality of its decoration for a lack of technical refinement. Huge oil-jars, basins and dishes are covered with compositions —in one class in blue and reddish orange only, in another polychrome with a strong green as dominant— in which fantastic birds or animals amongst foliage, or bull-fighting and battle scenes are rendered in a vigorous style showing no taint of foreign bias. Of Spanish earthenware in the eighteenth century a word will be said later (compare p. 92).

The fourteenth century witnessed the development from earlier modest beginnings of the enamelled earthenware of Italy, commonly known as *maiolica*. The word, an Italian form of the name of Majorca, is a misnomer, due to the fact that ships from that island were engaged in carrying from Spain the Valencian lustred ware to which it was at first applied; its meaning was later extended to cover also Italian lustred ware in which the Spanish technique was adopted, and finally any kind of earthenware with painting on a tin enamel. The earliest Italian ware of the class we now call maiolica, painted like the Paterna ware (see p. 84), in purple with filling in green, is purely Gothic in character, with designs from the

animal and plant world, or heraldry, in the style then current in other arts (fig. 10). Such wares have been found in quantity at Orvieto but were also made in many other cities of northern Italy. In the middle of the fifteenth century potteries in Florentine territory, probably at Montelupo, were taking the lead. Conspicuous amongst the early Florentine wares are the oviform drug-pots with human figures or animals amongst foliage like that of the oak, painted in purple and in a blackish-blue pigment laid on so thickly as to stand out in tangible relief. About 1450 the palette was extended; a clearer blue appears, accompanied by purple, green and yellow or orange, and these colours are sometimes employed in designs which show plainly the influence of the imported Valencian ware.

In the second half of the fifteenth century the lead in the output of maiolica passed to the little city of Faenza, in the Romagna, near Ravenna, and from its name the word *faïence* has passed into French and other languages. Amongst the forms of vessels made in maiolica one of the most characteristic was now the nearly cylindrical shape known as *albarello*, introduced from Spain, generally inscribed with the name of the intended contents (fig. 11). Before 1500 the maiolica palette had assumed at Faenza a harmonious richness and intensity unsurpassed in the history of pottery. The earlier Faenza wares show a definitely Gothic character, with powerful leaf motives or ornament inspired by peacock's feathers, accompanying single figures of men or animals treated in an intentionally decorative manner. Late in the century, complex figure-subjects begin to appear, at first within a border of leaves or formal ornament. For such compositions we have seen precedents in Near Eastern painted pottery; but other influences were now subtly at work. On every side the great masters of painting and their pupils were plying their brushes on wall and easel-panel, and the maiolica painters were quick to realize the possibilities

of emulation with pigments to which fusion in the kiln gave an enduring sheen and brilliance attainable by no other means. From decorative painting on pottery made for use they passed on, soon after 1500, to the use of earthenware dishes and tablets as recipients for frankly pictorial subjects, intended for decoration only. In some of these the influence of Mantegna, Perugino,

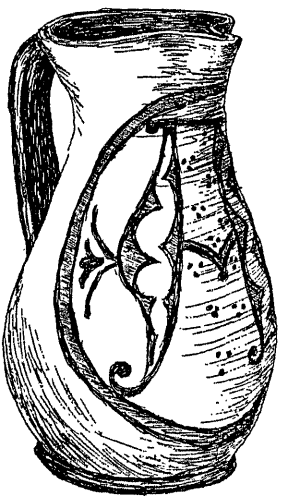


Fig. 10.—Early Italian maiolica jug
(Victoria and Albert Museum)

Fig. 11.—Faenza maiolica drug-pot
(Victoria and Albert Museum)

Signorelli or Melozzo is clearly recognizable, and very soon the multiplication of prints by engravers such as Marcantonio Raimondi made easy the adaptation—often the slavish copying—of the works of Raphael and others.

The lead in this direction was given at Faenza by an anonymous painter who devoted himself mainly to religious subjects; his best-known work—a panel with the Resurrection, obviously inspired by one of Dürer's woodcuts—is in the Victoria and Albert Museum.

Meanwhile in the duchy of Urbino, at Castel Durante, a new school of maiolica painting was being established. In the first four decades of the sixteenth century a certain Giovanni Maria—or a painter working for a Durantine master-potter of that name, it is not certain which—painted bowls and plates with highly fanciful compositions, mostly quite original, in harmony with a mood of wistful detachment not untinged with cruelty and psychologically characteristic of this age in which new experience was being sought in every direction. This artist was followed by Nicola Pellipario, the most accomplished of all maiolica painters, whose versatile skill was proved both in decorative designs and in others, entirely pictorial, depicting subjects preferably drawn from Ovid and other ancient authors (Plate IX, B). He is essentially the pottery-painter of humanism. Whilst he owed much to book illustrations and engravings, which he sometimes copied closely, he was gifted with the power of endowing the motives he borrowed from them with a new attractiveness; he handled them with a charm and grace all his own, generally in a landscape setting in which the beauty of his colouring is seen at its best; nor was he incapable of entirely original composition on occasion.

Pellipario seems to have migrated, a little before 1530, from Castel Durante to the city of Urbino, where he was followed by a host of inferior pictorial painters; amongst them Francesco Xanto, known from his often-recurring signature, alone calls for mention on account of his robust and richly chromatic style. As to the technical processes of the Urbino workshops there is full information in the contemporary manuscript of Cipriano Piccolpasso, now in the Victoria and Albert Museum, the oldest extant European monograph on the art of the potter.

Maiolica was made in many other places. Siena was about 1500 the home of a certain Maestro Benedetto,

whose work bears the mark of a simple religious sincerity. Deruta, near Perugia, was the first Italian pottery-centre to practise lustre painting. Here were produced in particular heavily built dishes with deep middle and broad rim painted in blue outline and pale brassy yellow lustre with portraits, heraldic shields, or sacred and allegorical subjects in which Franciscan influence from neighbouring Assisi can be discerned. From this Umbrian town the art of lustre-painting made its way into the duchy of Urbino—to Gubbio, where Maestro Giorgio Andreoli began about 1517 to produce maiolica resplendent with a brilliant ruby-red lustre never surpassed elsewhere. In Tuscany work of the highest standard was done about the same time by a painter named Jacopo in a workshop established at the castle of Caffaggiolo, near Florence, belonging to a branch of the Medici family; famous compositions of this artist (both at South Kensington) are his only signed work, Judith and her servant on horseback with the head of Holofernes, and a picture of himself decorating a plate in the presence of a patron and his lady. Lustred ware of fine quality was also made for a short time at Caffaggiolo.

Towards 1550 a change came over maiolica painting. There was a reaction against the pictorial manner then holding the field but manifestly with weakened power. At Urbino itself a new style was introduced, based on the grotesques painted by Raphael in the Loggie of the Vatican in emulation of the antique, in which the enamel was not entirely concealed by pigment but its creamy pleasantness was enhanced by a filigree of satyrs, sphinxes and winged genii giving wide scope to painters of whimsical imagination. Even more free and delightful in its effect was the style introduced about the same time at Faenza, where technical improvements had resulted in an enamel of gleaming whiteness; to display its excellence a slight decoration was adopted of simple figures of Cupid or

of a saint encircled by a formal wreath, all sketchily painted in a low-toned scheme of colour, chiefly blue, orange and purplish-black. In addition to painted wares, Faenza took the lead, afterwards followed elsewhere, in supplying at low prices large quantities of plain white maiolica of good quality. Venice, which came to the fore, as a home of maiolica about 1540, had a manner of its own in which arabesques play an important part combined with figures or grotesques, mostly painted in dark blue and opaque white on an enamel stained with cobalt to a pale lavender grey; here and in contemporary wares from Caffaggiolo the influence of the Turkish pottery of Isnik (compare p. 66) was operative, and indirectly that of Chinese blue-and-white porcelain.

In the seventeenth century the maiolica industry was carried on in many new centres; chief amongst these was the district of Genoa and Savona, on the Ligurian coast. Chinese influence becomes more and more apparent, whilst figure composition conforms with the prevailing Baroque fashion, and moulded embossment in the manner of the silver plate of the period was often adopted. In the eighteenth century there was a revival of the pictorial style of Urbino, but with a very different chromatic tonality, especially at Siena, and at Castelli, in the Abruzzi, where a thriving maiolica industry had grown up; the compositions chosen by the painters were copied chiefly from the Carracci, Bassano and later masters. At the same time Faenza continued to be productive, adapting to maiolica painting themes derived from Chinese and Japanese porcelain. Towards the end of the century maiolica declined to the status of a peasant craft, under the stress of importation from England of fine earthenware which compelled Italian firms to turn their attention to the output of the same class of goods.

From Italy the art of maiolica was carried by emigrant potters beyond the Alps. Some went to Germany

and Moravia, and to Switzerland, where they founded flourishing potteries at Winterthur. From 1512 onwards there are records of Italian potters settled at Lyons, although their earlier productions have not been identified; some inferior pictorial maiolica in the Urbino manner attributed to a Lyons workshop dates from the second half of the century. Maiolica drug-pots and pavement tiles with painting in French early Renaissance style are recognized as the work of a potter of French birth at Rouen; he is first recorded as owner of a pottery in 1543.[1] In 1585 an Italian potter from Albissola, near Genoa, was summoned by a syndicate to set up a factory at Nevers, and the important faïence industry still carried on in that city was founded;[2] it may here be explained that the word "faïence" should strictly speaking be used only, like "maiolica", of earthenware with a tin enamel. The earliest Nevers ware is mostly polychrome, with mythological and other figure-subjects in colours which though powerful have not the rich diversity of those of early Italian maiolica. In the seventeenth century a more restrained and sober palette supervened, often limited to blue and dark purple, under the influence of imported Chinese porcelain, and Chinese subjects took their place amongst the themes of the decorators beside European hunting-scenes adapted from contemporary engravings. A class apart amongst the Nevers wares, imitated in England at Lambeth, are those with painting of flowers and birds or Chinese landscapes in opaque white over an enamel stained dark blue.

Towards 1700 an artistic decline set in at Nevers and the leadership in faïence passed to Rouen. For about half a century the numerous potteries of Rouen turned out wares of high quality. In the earlier stages,

[1] See *Les Amis de Sèvres*, *Bulletin No.* 32, 1938, p. 57, M. Dehlinger, "Abaquesne et son œuvre".

[2] Not at the instance of the Duke, Louis de Gonzague, as usually stated; see G. Montagnon, "Origine della fabbricazione di faenze a Nevers", in *Faenza*, XXV, 1937, p. 18.

represented conspicuously by giant dishes and trays with superbly designed borders of symmetrical scroll-work like the *lambrequin* ornament of contemporary lace, the painting was as a rule either in blue alone or in blue combined only with brick red or orange. When changing fashion imposed the Rococo, asymmetry and designs in Chinese taste accompanied a more generous range of colouring within the limits of those capable of being fired at one operation with the enamel.

Moustiers, in Provence, was also producing faïence of good quality before the end of the seventeenth century. The Moustiers potters invented a variety of designs inspired by engravings and admirably adapted for their purpose. In one type—generally in blue monochrome—the surface is covered with an airy fretwork of archways, baroque platforms supporting busts, and festoons, in the manner of the engraver Bérain. In a later type we find, painted in soft colours, dainty little figures either from classical mythology or of the grotesque order due to the imagination of the much earlier engraver Callot, whose prints retained their popularity as a source of amusement all through the eighteenth century. From Moustiers there was an offshoot in Spain, when the Count of Aranda took with him thence a staff for a pottery established by him about 1730 at Alcora, near Valencia. The earlier Alcora faïence is often hard to distinguish from that of the parent factory.

The great contribution of France to the technique of enamelled earthenware was the application to it of the rich enamel colours, fixed at a subsequent low-temperature firing in a muffle kiln, used for decorating porcelain. These made possible more various and subtly-graded colouring than before. This innovation began in Alsace and Lorraine, at Strasburg and Niderviller, where semi-naturalistic flower-painting was practised with unsurpassed skill and taste, in rich enamels dominated by crimson and green over a ground of

the purest white (Plate X, c). From Strasburg the style spread to many other places both in France and abroad, notably Marseilles.

The Marseilles factories were supplied with excellent painters specially trained for the work in a well-organized school; amongst their distinctive successes are seascapes and groups of shells and seaweed painted in harmonious colours or sometimes in a deep green monochrome. Towards the end of the eighteenth century French faïence suffered the same fate as maiolica under the stress of English trade competition.

Another thriving branch of the maiolica craft was that established in the Netherlands. There are records to show that a potter from Castel Durante, Guido Savini *alias* Guido Andries, was already working at Antwerp in 1508,[1] but it is possible that even before 1500 the craft was already being plied there; this seems to be indicated by the finding in London excavations of maiolica flower-vases (including two with the royal arms of England incorrectly rendered[2]) which differ in form from any Italian examples but were almost certainly not made in England, and bear flower and leaf ornament of a kind current at Faenza in the last two decades of the fifteenth century (fig. 12). Specimens of Antwerp maiolica from the middle of the sixteenth century are plentiful, and we know that about this time, under stress of religious persecution, Protestant refugees had carried the art to Haarlem, Amsterdam and other places in Holland. Amongst the most pleasing of the designs employed in the Dutch potteries about 1600, on dishes as well as on the wall-tiles which were beginning to make a large part of their output, are the symmetrical arrangements of tulips, fritillaries and other flowers painted in a

[1] See H. Nicaise, "Notes sur les faïenciers italiens établis à Anvers dans le premier tiers du XVI^e siècle", in *Revue belge de Philologie et d'Histoire*, XVI, 1937, p. 193.

[2] See B. Rackham, "A Netherlands maiolica vase from the Tower of London", in *The Antiquaries' Journal*, XIX, 1939, p. 285.

gay palette of blue, orange, green and purple. Early in the seventeenth century there was a fashion also for grotesque designs derived, with considerable modification, from those originated at Urbino, and accompanying figures or landscapes obviously at home in the country of Rembrandt.

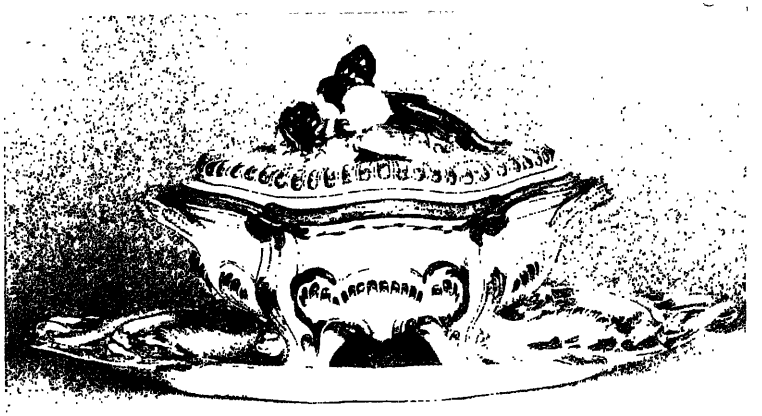
About the middle of the seventeenth century various circumstances led to the concentration of the Dutch maiolica industry at Delft, and the word " delft " came henceforward into currency as the name for tin-

Fig. 12.—Netherlandish maiolica vase (London Museum)

enamelled earthenware of the kind there made. From the first there was a tendency at Delft to discard the bright colours of the earlier maiolica in favour of blue-and-white; the movement was due to a variety of circumstances—for instance, the sombre austerity common to Protestantism and the counter-Reformation as shown in early Baroque art in general; but most powerful of all influences was certainly that of the porcelain which Dutch merchants were beginning to import by shiploads from China. Much of the earlier blue and white is delightfully painted with subjects in the manner of the Dutch genre and landscape painters of the day, notably the plates with rustic scenes in

B. Earthenware dish, Lambeth (Fitzwilliam Museum, Cambridge)
(*Page* 97)

A. Earthenware bottle, Dutch, Delft (National Gallery of Victoria, Melbourne)
(*Page* 95)



C. Faïence soup-tureen, French, Strasburg (Victoria and Albert Museum)
(*Page* 93)

blue, in a medallion surrounded by a wide border of plain white, drawn by the skilful brush of Frederik van Frÿtom; but more and more, fashion insisted upon Eastern themes, sometimes copied with almost deceptive fidelity from Chinese porcelain, until about 1690, when Delft ware was reaching the zenith of its technical perfection, Chinese and Japanese designs are in the majority; the monogram of the potter Samuel van Eenhoorn is found under the base of many of the vases and jugs of the finest quality made about this time (Plate X, A). By the beginning of the eighteenth century, in emulation both of Imari ware and of K'ang Hsi *famille verte* (compare pp. 81, 77), a polychrome palette was coming once more into favour, but of a very different order from that of the maiolica of the past. To the four maiolica pigments, much softened in tone, is now added an iron red, and in a favourite class of Oriental designs this colour is accompanied only by dark blue and gold. Almost throughout the eighteenth century the Delft factories were kept busily at work, with orders both for home and foreign buyers, but their wares steadily declined in quality and consequently in their interest to the student and collector.

In the eighteenth century the faïence industry was widespread in Germany. Maiolica was made in the south, as we have seen, in the sixteenth century, and from about 1620 for some thirty years there was a factory at Hamburg, the most characteristic products of which are blue-and-white wine-jugs painted with the arms of the city; there was, however, no enduring manufacture of tin-enamelled earthenware until, in 1661, two Dutch potters from Delft sought for a concession from the city council of Frankfort-on-the-Main for the erection of a factory; they were refused and set up business in the neighbouring town of Hanau, but five years later the privilege they had sought in vain at Frankfort was granted to a Frenchman in their employ. The earlier Hanau and Frankfort wares are

sometimes difficult to distinguish from one another and from those of Delft. Characteristic of Frankfort is a bright blue used in painting Chinese themes, notably lotus-flowers and leaves treated with an easily recognizable mannerism.

After this beginning faïence factories sprang up in quick succession all over Germany. A typical German shape and no less typical baroque design were introduced in the potteries under the patronage of the Elector of Brandenburg at Potsdam and Berlin. This was the *Humpen* or cylindrical beer-tankard, made to be fitted with a pewter lid. For its decoration, early in the eighteenth century, symmetrical Baroque panelling was the rule, with a space on the front in which was introduced a crowned cipher or the Prussian eagle, painted in blue often against a background of "powdered" manganese purple. The type spread to other German potteries using high-temperature colours.

About 1750 the muffle pigments in imitation of porcelain-painting introduced at Strasburg (see p. 92) were adopted in Germany also. Some of the best painting of this kind was done at Höchst, a factory established by the Elector of Mainz for making faïence as well as porcelain, and at Kiel. To survey in detail the local developments of faïence in all parts of Germany would not here be possible. From Germany the manufacture spread in 1722 to Copenhagen, and from Denmark it was carried very soon after to Sweden, where factories were established in the immediate neighbourhood of Stockholm, at Rörstrand and Marieberg; the former continued until, in recent times, it was transferred to Gustavsberg (compare p. 121).

Early importations of maiolica from Antwerp into England have already been mentioned. In 1567 we have the first record of Netherlandish potters settling in this country, first at Norwich and three years later in London, and from this period we may date with

confidence the beginning of the maiolica craft in England. The earliest tangible evidence, however, is a plate in the London Museum, dated 1601, with a border of crude grotesques in Italian style and an inscription in praise of Queen Elizabeth. Soon after, dated specimens become numerous of what it is customary to call " Lambeth delft ", although the potteries in which they were made were not confined to Lambeth but were spread out down the river into Southwark, and were busily productive well before Delft had won fame as a pottery town.

About 1620 we find wares with parti-coloured leaves obviously traceable to a decoration much favoured by Venetian maiolica painters; soon after, artless imitations appear of the birds in landscapes often to be seen on late Ming blue-and-white export porcelain, either alone or combined with no less unsophisticated plagiarisms of the grotesques on Urbino maiolica, whilst several of the moulded relief designs of Bernard Palissy were copied, but with no attempt at faithfulness in the colouring. The Lambeth wares become more interesting when they develop styles of their own. Amongst the most pleasing are the round-bellied wine-bottles with the name of their contents inscribed in excellent blue lettering on a white enamel of fine quality. From about 1635 polychrome wares with scriptural figure-objects become common, notably the Fall, as well as dishes with standing or equestrian figures of sovereigns from Charles I onwards and other notables, often very crudely rendered. Artistically the greatest success of the Lambeth delft potteries in the seventeenth century are dishes with a symmetrical arrangement of growing tulips and other flowers in bright colours within a border of blue dashes (Plate X, B); though of Dutch derivation (compare p. 93) these floral patterns were developed in England in a distinctive manner, showing an excellent sense of design and colour. Towards the end of the century, as recent researches have made

clear,[1] Chinese designs returned to favour, now reflecting the styles of the K'ang Hsi period, but handled with a freedom that makes them virtually new compositions, often of admirably decorative quality.

From London the manufacture of delft spread before 1650 to Brislington, near Bristol, to be taken up later in Bristol itself. The earlier wares show tulip designs and themes from Ming porcelain similar to those of the Lambeth wares. About the middle of the eighteenth century many charming landscape and floral designs appear in which Chinese and English elements are sometimes amusingly combined in harmonious colouring of lower tone than that prevalent a century before; a type in which such painting is done within a border of flowers in opaque white, on a bluish-grey enamel, is believed to have been made especially at the pottery of Joseph Flower. In the eighteenth century Liverpool and Dublin also had delft factories. Punch-bowls made to order with careful paintings of ships that called at the port, are the most striking of the Liverpool productions; tiles were also made, to be decorated by the firm of Sadler and Green with transfer prints in black, red or mauve.

Delft ware with its liability to chip and disclose an unsightly dark " body " beneath its white enamel was no match for the more serviceable cream-coloured ware introduced by Wedgwood. Like maiolica and other classes of tin-enamelled ware made on the Continent, it was driven from the market, and its manufacture barely survived in England into the nineteenth century. Thus a class of pottery which was rivalled in gaiety of colour only by porcelain languished and in places succumbed altogether in competition with the rationalized output of modern industry.

[1] See F. H. Garner, " Lambeth earthenware ", in *English Ceramic Circle Transactions*, 1937, p. 43.

CHAPTER VIII

European Porcelain

CHINESE porcelain first became familiar in Europe in the sixteenth century. As soon as it came to the knowledge of European potters it filled them with the desire to make something like it. Its influence on Italian maiolica has already been referred to (p. 90). There is record of attempts at Venice to master the secret of its composition as early as 1470, but the first experiments of which we have tangible evidence are those set on foot about 1575 by Francis I, Grand Duke of Tuscany. With the help of a Levantine potter he succeeded in producing, in a kiln erected for the purpose in the Boboli Gardens at Florence, a material made up of clay and a glassy frit having the whiteness and translucency of Chinese porcelain but very different in its composition; artificial porcelains of this kind are called "soft paste" in distinction from the hard paste of the true Chinese type. Though suggested by Chinese porcelain, this "Medici porcelain", as it is called, breaks entirely away from the Chinese in its shapes, which are in the Italian early baroque style of the period (Plate XI, A); its decoration, painted in cobalt blue sometimes combined with manganese purple, is as a rule in keeping with this style; sometimes—doubtless owing to the origin of the duke's anonymous assistant—it shows an acquaintance with contemporary Persian wares and the Turkish pottery of Isnik (see p. 67). Direct Chinese influence is not apparent. The production was continued under the Grand Duke's successors, but seems to have come to an end about

1600. Two small bowls of translucent ware in the Victoria and Albert Museum, dated respectively 1627 and 1638, are believed to come from a maiolica pottery at Padua and to be independent of the Florentine experiments; like them, however, they show Turkish influence in their decoration.

None of the early Italian essays had lasting results. The manufacture of porcelain was not permanently established in Europe until 1673, when a privilege was granted to a faïencier of Rouen, Edme Poterat, and his son. Several small articles such as pomade-pots and salt-cellars, in a glassy soft paste with simple scroll borders, painted in under-glaze blue, have been recognized as their productions. Shortly after, a factory was founded at Saint Cloud, which continued in operation until 1766. Like that of Rouen, the decoration on the earlier St. Cloud porcelain, though blue-and-white, is remarkable in showing no attempt to copy the Chinese (Plate XI, B); it consists of simple borders of cresting or *lambrequins* recalling those of contemporary Rouen faïence. At a later stage St. Cloud began to imitate the plain white *blanc de Chine* porcelain of Fuchien (compare p. 78), with applied sprays of *prunus* blossom in slight relief; polychrome Chinese themes inspired by the *famille verte* also appear.

Other early French factories of soft-paste porcelain were those of Chantilly, founded under the patronage of the Duc de Condé in 1725, which was continued till the time of the French Revolution, and Mennecy. Chantilly is justly famous for its enamel-painted designs copied from Japanese Kakiemon porcelain but imbued with a fresh charm and delicacy all their own. Mennecy, also supported by a nobleman, the Duc de Villeroy, made porcelain often of poor colour but, after an early experimental stage, painted in admirable taste with polychrome flowers or birds in the manner made fashionable by the productions of the royal factory newly established at Vincennes (compare p. 107).

The credit of discovering the long-sought secret of making true hard-paste porcelain like the Chinese belongs to Germany. The invention was the result of a curious chain of circumstances. Augustus the Strong, Elector of Saxony and King of Poland, was in need of money to replenish a treasury exhausted by costly wars and extravagant building plans. To this end he enlisted the services of an alchemist named Johann Friedrich Böttger in the hope of discovering how to make artificial gold. At the same time a nobleman named Tschirnhausen with a bent for scientific research was endeavouring to aid the king in his efforts to further productive commercial enterprise in Saxony by discovering the secret of porcelain. Böttger had the good fortune to come into contact with this experimenter just when his royal master was losing faith in his ability to make gold; he succeeded in bringing to a fruitful conclusion the researches begun by Tschirnhausen (who died soon after). Böttger not only found in Saxony the essential materials of porcelain, kaolin and petuntse, but also devised the right kind of kiln for firing them. He was allowed by the king to abandon his fruitless quest of the philosopher's stone in favour of a more feasible method of making money. In 1710, under Böttger's direction, the still existing Royal Saxon Porcelain Manufactory was established at Meissen, near Dresden.

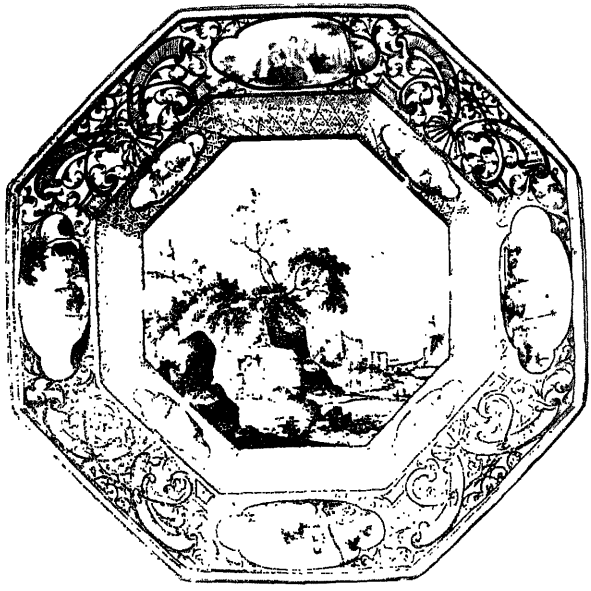
It was some time before the newly invented product —" Dresden china ", as it came to be called in England —had passed out of the rudimentary stage, and during this period the factory was employed chiefly in making what Böttger called " red porcelain ", a fine stoneware like that of the red tea-pots then being imported from China (compare p. 34) and so hard that it could be, and often was, cut and polished on the lapidary's wheel. The shapes of Böttger's red ware and of his earliest white porcelain were to a large extent not thrown on the wheel but moulded, after the fashion of

the baroque metalwork of the period, of angular profile. Casts were also made of the Chinese tea-pots and of Chinese porcelain figures, as well as from European bronzes. Some of the wares were decorated with applied reliefs, of acanthus foliage or else of vine stems and branches of rose with flowers and buds. Attempts to imitate the Chinese under-glaze blue painting were for a long time a failure, but various enamel pigments were used; we find narrow borders in a few spots of various colours, and even very simple landscapes and figure-subjects. These firstlings of the Meissen factory may seem somewhat trivial but in their time they excited enormous interest. It had now been proved that the porcelain brought at such high cost from China could be made at home.

Böttger died young, in 1719. The factory was in danger of collapse, but the situation was saved when the king engaged as its director a painter named Johann Gregor Heroldt, from the rival factory which had already been established at Vienna. Under Heroldt enamel painting was brought to a high degree of perfection; even the difficulties of under-glaze blue painting were mastered. The shapes of the wares were deliberately simplified, largely after Chinese models, in order to provide the amplest possible unbroken surfaces for the enameller. The painted designs were in fact copies of Japanese originals, of which the king had gathered together a large collection for the adornment of his Japanese Palace; the delicate compositions of the Kakiemon school were faithfully imitated, and the floral designs of "Imari ware", mainly in red, blue and gold (compare p. 81), were adapted or improved upon. Alongside these direct imitations of the Oriental a new and original style of *chinoiseries* was developing, under Heroldt's direction and in part from his own hand, inspired by illustrations, themselves for the most part highly fanciful, in a Dutch book recording an embassy to China. These new decorations exhibit

A. Cruet, "Medici porcelain", Florentine (V. and A. Museum)
(*Page* 99)

B. Porcelain milk-jug, French, St. Cloud
(*Page* 100)



C. Porcelain plate, German, Meissen (V. and A. Museum)
(*Page* 103)

Chinese engaged in drinking tea, trading, fishing and all sorts of amusing or impossible occupations. Soon it became the custom to enclose these quaint subjects in panels bordered by scrollwork, and to give the figures a landscape setting. From this, about 1730, another step forward led to the substitution of European for Chinese landscapes, with small figures in the foreground, mostly river scenes, of which a few can be recognized as views of Meissen itself or other places in Saxony (Plate XI, c). Another feature, which was to be widely imitated in other countries, was the adoption as early as 1725 of coloured grounds, chiefly canary-yellow, mauve and pale greenish-blue, in which the panels containing the pictorial subjects were reserved; the inspiration for this type of decoration is to be found in the powder-blue Chinese porcelain of the period with reserved panels containing flowers or landscapes in *famille verte* enamels (compare p. 77). Another class of decoration in which Meissen was to point the way for most European factories was polychrome flower-painting. The early flowers of semi-Oriental character known at Meissen as "Indian" were succeeded by naturalistic flowers, called "German" by distinction; at first they were stiffly composed in the manner of botanical illustrations, but about 1735 a freer style supervened which for long dominated porcelain painting all over Europe. During the Seven Years' War (1756–63), in which Saxony was confronted by the rising power of Prussia, Meissen, already beginning to feel the effects of the competition of rivals, lost its supremacy amongst the porcelain-factories of Europe.

After the rudimentary stages the Meissen wares displayed their originality even more in the great variety of their shapes and plastic decoration than in their painting. For this the factory was indebted to the genius of the sculptor, Johann Joachim Kaendler. To Kaendler even more than to Heroldt belongs the credit for creating a true European style in porcelain. He was

summoned to the factory when Augustus the Strong made demands upon it which its staff found beyond their powers; the king had conceived the idea of decorating entirely with porcelain a palace at Dresden which he called the Japanese Palace. Not only Oriental porcelain was to be used (compare p. 102) but also wares from his own royal factory. Its chapel was to have porcelain fittings (even the organ-pipes were to be of that material), and a long gallery was to be filled with figures of birds and animals, some of them life-size, from studies made in the royal parks and zoological garden. These great figures, in plain white porcelain (it was found impossible to devise a muffle-kiln large enough for firing enamel painting on them), still survive. Full of vitality though they are, they show by their cracks and flaws that the talents displayed by Kaendler as a modeller were being misapplied in a task impossible of successful execution with the technical resources then available.

Fortunately for Kaendler, Augustus the Strong died in 1733 and his son, who succeeded him on the throne, abandoned his grandiose schemes. The sculptor was thus set free to devote his extraordinarily fertile imagination and his plastic sense to the creation of works of art more suited alike to his temperament and to the material. For about fifteen years he was busily engaged in modelling for the factory or superintending the work of others. The new direction for which Kaendler was responsible is seen notably in the forms chosen for table wares and vases. In place of Oriental shapes we find the frank adoption of the Baroque modified to suit the needs of the material. Plastic decoration was now to play as important a part as enamelling. Raised borders in great variety were designed for plates and dishes; handles and supports were enlivened with scroll work and foliage. Whole services were designed in special relief patterns; coffee-pots and tea-pots were made in the shape of grotesque figures with bird spouts.

Figures were also applied as ornaments on the lids and even on the bodies of vases, and at the same time groups and figures were made in porcelain not only to adorn mantlepieces or as accessories to clocks and other articles of furniture, but also, to comply with a fashion of the day, for the decoration in a striking and amusing manner of the sideboard or tables at state banquets.

It was above all in the immense variety of models for figures, at first baroque in manner and later with rococo scrollwork accessories, that Kaendler displayed his fertility of invention, and this branch of his activity was to inspire to similar production the directors of porcelain-factories in every state of Europe. But it would be impossible here to review the work done in this sphere by Kaendler and his imitators; the space already devoted to Meissen can be justified only by the outstanding importance of the factory in the history not only of pottery but of art in general in the eighteenth century.

The successes achieved under the auspices of Augustus the Strong prompted other princes not only in Germany but all over Europe in due course to imitate his example. In Germany other factories for true, hard-paste porcelain sprang up in quick succession. The earliest, only eight years later than Meissen, was that of Vienna, founded with the help of an enameller who had been on the staff of Böttger; at first a private concern, this factory was in 1744 sold to the Emperor. In its early days Vienna produced table wares of decided merit, with clever use of baroque scrollwork, sometimes painted in black and gold only, in a manner independent of the styles of Meissen. Next in order, but considerably later, came Höchst, the private factory of the Archbishop of Mainz, in which enamel-painted faïence of fine quality was also made (compare p. 96).

About 1750 new foundations follow in quick succession. First came the Bavarian factory, removed

soon after its establishment at Neudeck to Nymphenburg, near Munich, and justly graded in the very first rank for the rococo figure-sculptures of its chief modeller, Franz Anton Bustelli. Then, within eight years, followed Berlin, Fürstenberg (the Duke of Brunswick's factory), Frankenthal, under the protection of the Elector Palatine, and Ludwigsburg, in Württemberg. The Berlin factory, begun as a private concern, was bought in 1763 by Frederick the Great and received his personal attention; it achieved conspicuous artistic success with a number of services, tastefully decorated with rococo scrollwork in relief and gaily painted flowers, made for the king's use at Potsdam. There were several other minor factories in Germany, including some in Thuringia which were founded on commercial lines independently of princely support.

Of the German factories in general, apart from Meissen and Vienna, it may be said that their title to a place in the records of pottery is based rather on their prolific output—mostly of highly individual character—of porcelain figures than on their table wares. Most of them were in due course affected by the influence of Sèvres, and over all, as indeed over European porcelain in general, there fell a blight when they were called upon to fit in with the ideas of the Classical Revival. The sober restraint thereby imposed involved a deliberate renunciation of the gaiety to the expression of which porcelain with its sparkling glaze and bright enamels so readily lends itself. Complete stultification came at last when, under the dictates of Napoleon, porcelain was looked upon chiefly as a vehicle for the painter's art, and its beauty as a material was as a rule completely hidden from view under a smothering load of opaque enamels and gilding.

Whilst most countries were subordinate to the influence of Meissen, France, already meriting distinction for its early commercial ventures in making soft-paste porcelain, holds a position of its own through

the prowess of a great national institution, the royal manufacture at Sèvres. It was nevertheless to the success of Meissen that Sèvres owed its origin. At a time when the porcelain industry carried on at St. Cloud, Chantilly and other small factories was being seriously menaced by the thriving export trade from Saxony, two employees dismissed from Chantilly, brothers named Dubois, got into touch with a nobleman, Orry de Fulvy, who was interested in promoting French commercial enterprise; he willingly listened to their proposals for the establishment of a new factory in the hope of discovering the secret of true hard porcelain. As brother of a court official charged with the control of public buildings and manufactures, Orry de Fulvy had no difficulty in securing for the purpose quarters in the keep of the royal castle of Vincennes. The experiments there conducted were at first fruitless, but the sagacity of an associate of the Dubois averted impending failure, and in 1745, after four more years of experiment, a satisfactory material was at last produced.

In that year an exclusive royal privilege for twenty years was obtained, for the manufacture of porcelain *façon de Saxe* (*i.e.* like that of Meissen), *c'est-à-dire peinte et dorée, à figures humaines*. The king himself, Louis XV, whose connexion with Saxony through marriage to a daughter of the Elector Augustus III disposed him to take an interest in porcelain, contributed large sums to the undertaking; it also enjoyed the enthusiastic patronage of Madame de Pompadour. In 1759, when it was on the point of financial collapse, the king acquired the factory as royal property, and through all changing forms of government it has remained ever since a French national establishment

The factory owed its rapid advance to a position of outstanding distinction to the fact that, from its very first organization under royal protection, it was placed in the hands of men who were in the front

rank of their several professions. The technical side of the work was controlled by the chemist, Jean Hellot. The court goldsmith Duplessis and the sculptor Etienne Falconet were appointed chief modellers; designs for painters and modellers alike were supplied by François Boucher. In 1756 the manufacture was moved from Vincennes to the site which it still occupies at Sèvres.

Unlike St. Cloud and Chantilly, Vincennes porcelain shows only slight traces of Oriental influence. The productions of the early period are mostly painted with simple floral designs or landscapes in the Meissen manner. A surprisingly large proportion of the Vincennes revenue was derived from making artificial flowers in porcelain, to be mounted on metal stems as embellishments of ormolu candlesticks and clocks. With the appointment of a competent staff shortly after 1750 the factory quickly developed a style of its own, which soon displaced that of Meissen as the dominant influence in other European porcelain-works. Vases were designed by Duplessis and others in entirely original and sometimes extravagant forms (Plate XII, A), such as the *vaisseau à mat* (of which there is a famous example in the Wallace Collection), a vase with elephant-head handles, and another surmounted by a fountain between two dolphins. Beside a Chinese jar of the Sung dynasty, for instance, or a mediæval English pitcher, such inventions may be condemned as aberrations from the strait path of ceramic propriety; they cannot be fairly judged unless they are considered as adjuncts to the architectural splendours of a royal palace such as Versailles. As such they display to the full the French genius for monumental composition, whilst in beauty of material and perfection of workmanship they are hardly surpassed by anything made in porcelain.

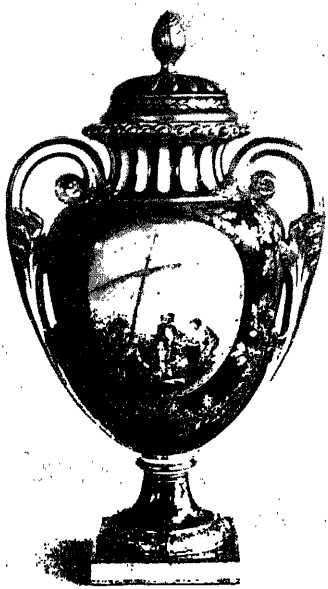
The same sense of design is shown in the forms created for table services, whilst vases and services alike display an inexhaustible variety and richness of decoration.

Simple and often charming vignettes of landscape, bird or figure subjects, amongst which cupids in the manner of Boucher often play a part, were from an early stage set in panels reserved on a ground of coloured enamel and enclosed by carefully chased gilding. The idea of a coloured ground was borrowed from Meissen and ultimately from Chinese powder blue (compare p. 78), but Vincennes and Sèvres evolved for the purpose enamels such as the *gros bleu* and *bleu de roi*, *bleu céleste*, *rose Pompadour* and *vert pomme*, of unsurpassed richness, which were to be emulated, mostly with slight success, in other European factories. In the earlier stages form and decoration blend in a combination which, however sumptuous, shows vitality of invention and consistent good taste. From this standard there was a gradual declension when Louis XV had been succeeded by his grandson and Queen Marie Antoinette was the dominant influence. The reserved panels on the coloured grounds were filled with pictures entirely concealing the white surface of the porcelain, instead of the earlier simple vignettes; for less expensive services border-patterns were devised which did not make up by their complexity for the lack of taste shown in their conception. An important development took place on the technical side when the discovery of beds of kaolin near Limoges made possible, in 1770—after lengthy researches, the regular production at Sèvres of hard-paste porcelain. The factory was already in decline when the Revolution in 1793 brought it to the verge of extinction. It was rescued by Napoleon and required to devote itself entirely to the output of hard-paste, for the production of which numerous small factories had been started in Paris and elsewhere in France. The subsequent career of Sèvres belongs to the history of modern times.

In the second half of the eighteenth century few states of Europe were without their porcelain factories, either princely or commercial. At Tournay, in Belgium,

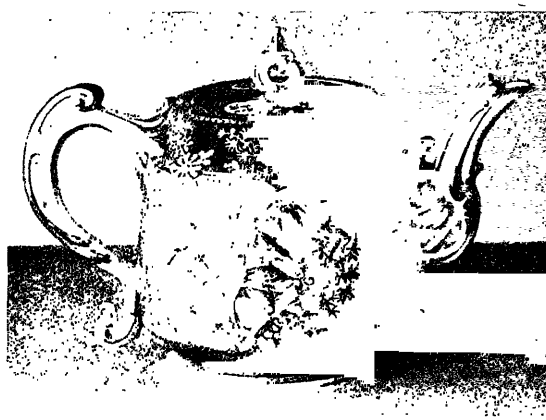
soft-paste porcelain of excellent quality was made from 1750 onwards; the factory is of interest because of its staff connexions, as yet incompletely investigated, with Chelsea. In Italy there were important factories at Venice, near Florence (at the villa of the Marchese Ginori at Doccia) and, under the protection of Charles III, King of Naples (son-in-law of Augustus the Strong of Saxony), in the precincts of his palace at Capo di Monte. When Charles succeeded to the throne of Spain in 1759 he took with him the entire staff of his Neapolitan factory to establish a new one on similar lines near Madrid, at Buen Retiro. The Doccia factory is carried on to the present day as part of a large Italian combine of ceramic establishments.

England was a late entrant in the field of porcelain manufacture. The experiments of Dwight in the seventeenth century (see p. 38) did not achieve the desired result. Priority belongs to two factories in the outskirts of London. In 1744 a patent was granted to Thomas Frye and Edward Heylyn for a factory at Bow, but it is doubtful whether it began operation until the following year. A cream-jug in the British Museum with the inscription *Chelsea* 1745 incised under its base, is evidence that the famous Chelsea factory had begun its career at least as early as that date. The metropolitan factories were followed in quick succession by others in the provinces founded shortly before or soon after 1750—Bristol, Worcester (1751), Derby, Longton Hall in Staffordshire, and Lowestoft. The porcelain made in all of these was alike in being of the soft-paste type, but differed as regards the ingredients in its composition. It was not until 1768 that the discovery of kaolin in Cornwall led to the establishment at Plymouth by William Cookworthy, a chemist resident in the town, of a factory for making true, hard-paste porcelain; he was guided in his procedure by the letters of a French missionary describing the manufacture in China.



A. Porcelain vase, French, Sèvres
(*Page* 108)

B. Vase, Wedgwood's blue jasper ware
(*Page* 126)



C. Porcelain teapot, Chelsea
(*Page* 111)

(A, C, Victoria and Albert Museum; B, Castle Museum, Nottingham)

Chelsea stands easily first amongst the English factories. In spite of technical defects never completely eliminated, the " bodies " made there, especially about 1755, in what is known from the mark employed as the " red-anchor period ", are of beautiful quality; like that of Sèvres, the soft creamy glaze was a very sympathetic recipient for the enamel pigments, which coalesce with it more readily than those on hard-paste porcelain. Whether in flower-painting or in figure-subjects, the Chelsea enamellers to a large extent imitated foreign types, at first Japanese, then those of Meissen, later of Sèvres, but a certain originality is as a rule shown in handling the borrowed themes. Towards 1760 rich ground-colours were introduced, rivalling those of Sèvres, notably a deep mazarine blue and the so-called claret colour (Plate XII, c). For its shapes Chelsea at first copied for the most part originals in silver, both its first and its second proprietors being silversmiths; it was the latter, Nicolas Sprimont, a native of Liége, who by his enterprise secured for the factory Court and society patronage. Under Sprimont's management Meissen models were to some extent adopted, and porcelain figures in emulation of Meissen but often of original design formed a large proportion of the output. Sumptuous vases and candelabra in a rococo style of their own, richly enamelled and gilt, were also produced. In 1770 financial difficulties led to the purchase of the factory by William Duesbury, who sixteen years before had set up as a china manufacturer at Derby; for some time the two factories were carried on together under his control. During this " Chelsea-Derby " period Duesbury set himself to cater for the fashionable world by revolutionizing the style of decoration in conformity with the new classical standards of the day, already adopted for his wares by Josiah Wedgwood (see p. 44); the riotous rococo of late Chelsea gave way to striped patterns and simple sprigs in restrained colouring applied to shapes of

corresponding sobriety. The decoration adopted for table services at Derby in the last decades of the eighteenth century is almost unsurpassed in its suitability alike for the material and for the intended purpose of the ware. Landscape-painting reflecting an English enthusiasm of the time was much employed, with a good judgment in adaptation to the medium lacking in later developments, when it continued in favour for decorating the tasteless productions of the factory in its last stages (it closed down in 1848).

The decoration of Bow porcelain in its earlier years followed the Oriental manner indicated by the title, "New Canton", adopted for the factory; this phase was succeeded by artless imitations of Meissen and Chelsea. Technically Bow porcelain is of interest as the first in which bone-ash was used as an ingredient, afterwards to be adopted in the standard English china "body". Lowestoft china is akin to Bow, but even humbler in its pretensions; it is in consequence æsthetically less unstable. The proprietors were satisfied with catering for the needs of such clients as its neighbourhood provided.

The Worcester factory, still carried on, though not on its original site, was, in some way as yet not fully ascertained, connected with a short-lived porcelain manufacture conducted in a glass-house at Bristol. From this its proprietors seem to have acquired the secret of using soapstone (steatite) as an ingredient. The "body" thus composed seems to have been more manageable than those employed at Chelsea and elsewhere. The factory was started on sound business lines; its wares were intended primarily to be serviceable and are from the first remarkable for their sound technical qualities. The decoration is as a rule simple and unaffected, following, but not slavishly copying, at first Oriental and later Continental models (Plate V, B). Here also some attempt was made to emulate the rich

ground-colours of Sèvres; the "scale blue"—overlapping scale-pattern painted in a soft dark underglaze blue—was especially popular. Worcester was the first porcelain-factory to adopt transfer-printing, introduced a short time before in the enamel-works at Battersea, as an easy and therefore inexpensive method of decoration. The prints, from copper plates skilfully engraved, were at first executed in black and other enamel colours; printing in under-glaze blue was a later development, much employed also at a small neighbouring porcelain-factory at Caughley, in Shropshire.

The factory founded in 1768 at Plymouth was transferred in 1770 to Bristol, where it continued for about thirteen years to produce hard-paste porcelain with decoration in a pleasant but unimaginative style conforming to the taste of the period. The concern was afterwards acquired by a Staffordshire company which, at New Hall, Shelton, produced wares worthy to be commended for their appropriate if unassuming decoration.

CHAPTER IX

Modern Times

IN the modern period since the beginning of the nineteenth century the art of the potter has in general declined, under the stress of growing industrialism. In peasant workshops, alike in China and Japan and in Europe, including England, as well as amongst savage tribes in America and Africa, sound craftsmanship was still kept up and in remote places continues even to the present day, but with dwindling vitality. Apart from such spheres pottery tends to fall into two classes—useful wares turned out on lines of mass production, and ornamental vases made by individual potters whose initial training has been that normal in the modern school of art; there is also a large body of wares intended to be decorative but so entirely lacking in artistic quality that they are not worth serious consideration. Of useful pots, made largely by machinery, mathematical precision and uniformity of shape and size are required, to fit them for taking their place amongst other mechanically made appliances; the result is that such æsthetic merits as it is possible for them to possess are those of a well-constructed machine, limited to the satisfaction given by a thing well fitted to do its job (only in colour, and not always even there, can there be some latitude beyond these limits). Decorative wares depend more than formerly upon the personality of the artist-potter; they are of interest only if their maker or designer is a man or woman of strong character, able to assert individuality

against the handicaps imposed by the well-intended, but too often misguided curriculums of academic instruction. Changes of style there have been, in both classes of production, but changes imposed by arbitrary enthusiasms for ancient models, not brought about spontaneously under the stimulus of altered conditions of life. Artistic invention has stagnated and recourse has been had in its default to plagiarism. Only in quite recent times has there been emancipation from the disastrous effects of nineteenth-century thraldom to the styles of the past.

It would be impossible and hardly interesting to follow the course taken, even by the leading factories only, in the various European countries during the first half of the nineteenth century. In many of them the manufacture of porcelain was combined with that of several types of earthenware or fine stoneware. Under the auspices of Napoleon the Empire style, elaborated from Ancient Egyptian and Roman models, was introduced at Sèvres. Its extravagances as there practised set the fashion for royal and even commercial factories in most countries of Europe. England, partly no doubt as a result of her unconquered isolation, held to a large extent aloof from this movement.

The opportunities afforded by troubles in France to British society from the Prince Regent downwards of collecting on easy terms the splendid Sèvres porcelain of the *ancien régime* resulted as early as the second decade of the century in attempts to imitate it; the small short-lived porcelain-factories carried on at this time in South Wales, at Swansea and Nantgarw, produced various types of glassy soft porcelain of excellent quality with decorations inspired or even literally copied from Sèvres of the time of Louis XV. In other factories, such as those of Worcester and some in Staffordshire, provision was made for the revived fashion for *chinoiserie* seen in its most extravagant form in the architecture of the Pavilion at Brighton;

the wares made under this impulse are for the most part clumsy in shape and, in their over-loaded decoration, entirely lacking in the charm and individuality which most eighteenth-century European porcelain in Oriental style has to recommend it. A vulgar excess of harsh colours and gilding is the mark of most porcelain made in England for several decades from about 1810 onwards; the productions of the Rockingham factory, at Swinton in Yorkshire, and the contemporary wares of Derby are the worst offenders. A word of approval, on the other hand, may be bestowed on some of the table services made soon after 1800 in Staffordshire. Here the New Hall works (see p. 113) and the lately founded Minton factory at Stoke-on-Trent produced porcelain displaying a number of simple border designs as appropriate as they are original; some are faintly reminiscent of chintz patterns, in others shells and seaweed as well as flowers play a part. The firms of Minton and Spode also made good use of transfer prints in stipple, mostly of the landscape subjects popular at the time, in a quiet tone of grey-black.

The depths of chaos in conflicting styles were reached when the Great Exhibition of 1851 incited competitors from all countries to surpass one another in the misguided excesses of their efforts. Bloated perversions of the Antique, the Gothic, the Rococo, and the Oriental, all alike showing an entire lack of appreciation of the true possibilities of the materials employed, jostled one another in the hope of engaging by their wealth of decoration the attention of the public. Reaction came at last.

Emancipation was gradual, in the second half of the century, along the twofold lines indicated at the beginning of this chapter. Artists trained in the state and municipal schools of art which had been founded in most countries, began to turn their attention to pottery as well as other forms of " applied art "; the direction taken by them was at first suggested by the specimens

of ancient craftsmanship exhibited in the museums then also newly established. Something parallel to the work of Kenzan and other artist potters of Japan (see p. 80) was the result; individuals followed their own predilections with little attention to social requirements and only very slight influence on industrial design. More effective were the decorative wares produced in the various state factories such as Meissen, Sèvres and Copenhagen.

In official quarters the lead was given by Sèvres. Amongst several technical innovations started at that factory was the development of porcelain slip decoration in what is known as *pâte sur pâte*; cameo reliefs were applied in white over a superficial layer stained black, grey or celadon-green not by means of moulds as in the case of Wedgwood's jasper ware, but free-hand, in soft slip, with the help of modelling tools and a wet brush. This process, introduced about 1860, was exploited most successfully and in a highly personal style of figure composition by M. L. Solon, who, in 1870, quitted Sèvres and obtained a post in the Minton factory at Stoke-on-Trent which he retained till the beginning of the present century. An artist who worked about the same time at Sèvres after previous employment at Minton's was the sculptor Albert Carrier-Belleuse. At Sèvres the *pâte sur pâte* method was taken up by Taxile Doat, sometimes in combination with a high-temperature crimson glaze imitating the Chinese *sang-de-bœuf*. The extension in range of high-temperature coloured glazes and pigments was a notable success of the Sèvres factory towards the end of the nineteenth century. It may be noted that at this period the sculptor Émile Rodin was, for a short time, in its employ.

The opening up of contact with Japan resulted in an enthusiasm for Japanese craftsmanship which was not without effect on pottery manufacture in Europe. One of its less fortunate results is seen in the porcelain

produced at Worcester in the 1870's with laboriously cut openwork ornament or made to simulate in outward appearance Japanese work in other materials such as ivory and lacquer. The only wholesome fruit of this contact was the movement set on foot in 1884 at Copenhagen, when the royal Danish factory was reorganized and Arnold Krog was put in charge of its artistic development. Krog turned his attention to the designing of shapes more in accordance with the spirit of the material than had for long prevailed in Europe; for decoration he adopted, instead of the customary enamel colours, under-glaze pigments capable of resisting the very high temperature which a new type of hard porcelain then introduced at the factory required for its firing. The motives chosen by Krog and his assistants, painted in soft blue alone or in combination with green, grey and mauve, show Japanese influence in their treatment but were of entirely local derivation; the artists favoured the flowers and wild life and, most of all, the landscape of their native Denmark. Side by side with useful wares and vases a large number of figures illustrating the rural life of the country, human and animal, were produced from models by able sculptors. About 1900 scientific research led to the invention of crystalline glazes, and in the period since the war attention has been paid to other high-temperature glazes, sometimes aided in their development by their application to a porcellanous stoneware "body" in emulation of mediæval Chinese wares. In these materials remarkable figures as well as vases and bowls with vigorously engraved figure-subjects have lately been made by Jais Nielsen.

The technique of high-temperature glazes and painting was taken over from Copenhagen by other porcelain factories, notably Berlin and Meissen. In France attention was usefully turned to work in colour-glazed stoneware, again under Japanese or Chinese influence. At the end of the nineteenth century, good work in

A. Stoneware water-pot, Japanese, Seto, "Shino ware"
(*Page* 80)

B. Stoneware tea-bowl, made by Kenzan, Japanese
(*Page* 80)

C. Stoneware bowl, made by William Staite Murray
(*Page* 120)

(All, Victoria and Albert Museum)

this medium was done by Dalpayrat and Auguste Delaherche; more recently Decœur has produced wares of an original kind with thick creamy-white glaze, generally showing a wide crackle, as a rule over boldly engraved formal ornament. An iridescent glaze is the feature of stoneware made by Clément Massier at Golfe Juan, in Provence.

The influence of the newly established museums is seen in quite a different phase in its effect upon the painting of earthenware. In France, under the inspiration of Turkish pottery, a new range of underglaze colours of great brilliance was invented and employed by Théodore Deck. The pictorial maiolica of Urbino (compare p. 88) had probably made an impression on the painter Emile Lessore, another of the French ceramic artists who migrated to England. From 1860 onwards Lessore was employed at the Wedgwood factory at Etruria; his work, in low-toned underglaze pigments, predominantly brown and crimson, consists mostly of nudes somewhat reminiscent of the paintings of Etty. In England the enthusiasm for Turkish pottery is clearly reflected in some of the textiles and wall-papers designed by William Morris; he found a sympathetic collaborator in the potter William De Morgan, who, in 1882, transferred the scene of his operations from Chelsea to the immediate neighbourhood of the Morris factory at Merton Abbey (six years later De Morgan moved again, to Fulham). The decoration on De Morgan's pottery and tiles, mostly carried out by painters copying his designs, is partly a reflection, in colouring but little else, of Near-Eastern wares, partly in ruby or golden lustre pigments intended to rival those of Gubbio; in general it is in harmony with the spirit of the pre-Raphaelite movement. Chinese coloured glazes and early Persian lustre ware are the starting-points from which Mr. William Burton and his brothers developed the two principal types of vases and tile-work produced in the Pilkington factory,

near Manchester, established under their management early in the present century. Pottery and tiles of excellent quality with painting in bright under-glaze colours traceable in its style to the influence of early Dutch and Spanish maiolica, have been made since the war by Carter, Stabler and Adams at Poole.

The stoneware made on the site of the old Lambeth potteries towards the end of the nineteenth century by the firm of Doulton, though mostly exhibiting sound clay craftsmanship, suffered from the artistic limitations of its decorators; in quite recent times there has been an excellent revival at the factory under Mr. Joseph Mott, in conformity with a new Oriental trend, a notice of which must bring to a conclusion this cursory survey of modern decorative pottery. In the Doulton factory Edwin Martin and his two brothers received a training which enabled them, in a workshop established at Southall, to make stoneware of genuinely ceramic quality; in their later work, under the stimulus derived from a visit to the Paris Exhibition of 1900, very satisfying results were sometimes achieved. Mr. Bernard Leach and Mr. William Staite Murray, working on similar lines since the war, have had the advantage denied to the Martin brothers of familiarity with the newly disinterred early porcellanous wares of China. Both artists, with a debt to the Far East which they readily acknowledge, have produced highly individual work which has given England an honourable place in modern developments of the craft (Plate XIII, B). Mr. Leach, trained in Japan, has produced in his pottery at St. Ives in Cornwall not only porcellanous stoneware of the Oriental type with brown or celadon glazes but also, taking up traditions till recently surviving in Devon, earthenware with slip decoration in the time-honoured English manner, but in new and vital themes quite personal to himself. In this latter class of work he has been successfully followed by Mr. Michael Cardew, of Winchcombe. Miss Norah Braden

and Miss Katharine Pleydell-Bouverie may be named among the many other men and women artists in this country who have recently taken to making pots with their own hands (as distinct from merely designing them), sometimes with conspicuous success.

In pottery made for use progress has been more sluggish than in the work of the artist potters. Advances in mechanical equipment have not been found incompatible with an easy-going adherence to bygone fashions in form and decoration. The *Art Noveau* style with which Europe was plagued about the beginning of the twentieth century was as unfortunate in its effect on pottery design as elsewhere, especially in England, where it made a belated appearance in a weakened, imitative form. A healthy reaction began about twenty years ago, when the growing insistence on aptness for function had its effect on pottery as on other kinds of industrial art. New shapes began to be designed for new uses, and decoration, reduced by increasing austerity of taste to the simplest of patterns, often little more than linear, was forbidden to interfere with the efficiency in use of the article to which it was applied. On the Continent the new direction can be detected in its most drastic form in the table services of many firms in Germany. Some of the best new useful wares are those made until its cessation by the Rörstrand factory (compare p. 96) and by its successor at Gustavsberg, in Sweden; both in modelling and painting, these wares show traces of the Louis Seize classicism modified with good judgment which is common to much contemporary Swedish design.

In England the reform movement has been taken up by a few Staffordshire firms but by none so successfully as in the Wedgwood factory at Etruria. Here new "bodies" and glazes have been made use of in shapes and decorations designed by Mr. Keith Murray and in which the standards of taste and efficiency set by the first Josiah Wedgwood in the eighteenth century

have been fully reinstated; transfer printing has also been given the serious artistic attention which it deserves as an element in modern pottery design. The wholesome influence of the new movement has been operative also in some recent productions of the no less ancient Worcester porcelain works. In stoneware also good work has been done by close attention to functional purpose, notably in the Derbyshire works of Messrs. Bourne. In general it may be said that in spite of a dead weight of traditionalism the leaven of revival is steadily at work.

PART II — GLASS

CHAPTER I

Glass in Antiquity

GLASS is a material which, in modern times, has attained an importance hardly surpassed by that of any other product of human inventiveness. In scientific research, in architecture and engineering, as an aid to sight, and for countless purposes of household life it plays an indispensable part in civilization. Yet this vast expansion of its function has come about in a period of little more than two centuries, which is short in comparison with the great antiquity of the material itself, and does not concern us in the present work. We have here to consider the history and development of glass as the material of articles which, though mostly designed for a useful purpose, deserve by reason of their beauty to be regarded also as works of art.

Although glass is of great antiquity, in the form in which it is usually thought of it is much less ancient than pottery and several other kinds of artifact. When we talk of glass we have in mind chiefly glass vessels and windows; the small articles such as beads and other kinds of jewellery in the making of which glass first made its appearance, are of small account and much less important nowadays than they were in antiquity. Windows, and the superb art of the glass-painter born in mediæval Europe out of their invention, would

require a treatise to themselves and are accordingly omitted from our consideration. We shall therefore confine ourselves to vessels made of glass, leaving out of account also various other articles known in modern speech by the word "glass", in the singular or plural, without further qualification. Glass in the form of vessels was little made before the invention of the blowing-iron, which took place less than two thousand years ago; when once this implement had been invented the glass-maker's craft grew rapidly, and glass as we commonly think of it to-day became a customary adjunct of civilized life.

Glass and pottery have something in common. Mineral substances are essential constituents of both, and both require heat in their production; they are amongst what the French call *les arts du feu*; but they present obvious and striking differences. Whilst both can be given their shape and most of their decoration only when they are in a soft condition, this state in the one case is the result of firing, in the other precedes it. Glass only comes into being when its materials have been fused together by heat, and can be worked with any facility only when it has been molten by fire into a soft condition; pottery, also worked when the materials are soft and plastic, goes to the kiln after, not before, being shaped. Glass is hardened by cooling, pottery by heating. Most glass vessels are shaped by expansion from within outwards by the breath of the glass-blower; pots are formed under inward pressure from the hand of the thrower as the clay turns on the wheel (though other methods are in use this is the primary and, through the ages, the commonest process).

Glass is a composite material made by fusing together various substances of which the essentials are silica and an alkali in combination with lime or lead. The silica is usually in the form of sand, but powdered calcined flints can also be employed; for the alkali use has been made at various times in the past of potash,

obtained by burning wood, especially beechwood, or fern, or of soda from the ashes of seaweed. Lead, although not unknown in the glass of the ancient world, was not commonly used until, as will presently be related, it became the distinctive ingredient of the so-called " flint glass " of modern times. Almost from the beginnings of the art it was known that glass could be coloured by the inclusion in its composition of various minerals. The presence of iron as an impurity in the ingredients is the cause of a greenish or yellowish brown tone in much glass made by primitive methods; to counteract such discoloration various bleaching agents can be employed such as manganese. The principal staining materials used in ancient times were copper to produce light blue, green and blood red, cobalt for dark blue, manganese for amethyst-colour or brownish purple, antimony for yellow, and iron for various hues from green, as in ordinary bottle-glass, to brown and black. An opaque white is obtainable from tin, and tin can be used as an opacifying agent with other colouring materials, but in some cases the opacity of glass is due not to tin but to the presence in it of a dense multitude of minute enclosed bubbles.

The properties which give to glass its distinctive aptitude for artistic manipulation are its cohesiveness and its extreme ductility when in a viscous condition, in the stage of cooling from the molten state. When gathered up on the iron from the melting-pot glass can be blown into a bubble of extreme tenuity or drawn out into the finest of threads; it can be twisted into a plaited cord or rolled out into a slab or pinched into a frill. By means of colouring oxides mixed in the molten batch it can be stained with hues hardly surpassed by the most beautiful of natural forms; the names by which the colours of glass have from early times been known—sapphire, amethyst and emerald—imply a comparison which is not unapt. Its translucency makes it the most ethereal of artificial substances; by

its reflecting and refracting power it makes of light itself a wonderful medium for artistic design, and this quality can be brought into full play by means of cutting and engraving tools when the material, suitably compounded, has been reduced by cooling to a hard condition.

When once the use of the blowing-iron had been discovered these multifarious properties of glass could be and soon were exploited to the full; but as we shall see, this discovery came relatively late in the history of civilization, much later, for instance, than the invention of the potter's wheel or the working of metallic ores. The earliest blown glass vessels date from the first century before Christ at the earliest; before that time the possible uses of glass were limited in the extreme. The secret of its manufacture was already known in Egypt more than 3000 years before Christ, but then only as a material for making small articles of jewellery such as beads and pendants for stringing together as necklaces or breast ornaments, amulets, rings and scarabs; the glass paste in its molten state could easily be moulded or manipulated into a great variety of shapes sometimes in miniature imitation of flowers or fruit or as tiny representations of human and other living creatures. These are often of exquisite beauty and refinement as miniature works of art. The employment of glass paste for making hollow vessels began much later; such things make their appearance some sixteen centuries before Christ, but the Egyptians in these early times were hindered in the application of the substance by the limitations of their technique. Tombs of the Eighteenth Dynasty (about 1500–1350 B.C.) have yielded not only ornaments such as were being made from earlier times but also useful articles —small bottles or phials for unguents and perfumes, made in opaque light- or dark-blue glass paste; any considerable size was precluded by technical difficulties; the vessel had to be given its shape by wrapping or

winding the viscous material round a core modelled in clay by hand to the required form and scraped away from the interior when the glass had cooled and hardened. Decoration is nearly always present, in the form of closely set transverse stripes differing in colour from the ground; these were made by pressing fine parallel threads of glass into the surface of the vessel, whilst still in a soft condition; they were as a rule worked into zigzag or feather patterns in exactly the same manner as the combed patterns on the Staffordshire slip ware described on p. 33. Small vessels of this kind continued to be made by the same process and with little change in their general character until Ancient Egypt as an independent state came to an end; new shapes were introduced and a wider range of colours, but the earliest examples were never surpassed either in quality of material or in beauty of colour.

At some date not established with certainty but probably in the reign of the Emperor Augustus the first and greatest revolution in glass manufacture took place; the blowing-iron, already referred to, was invented—a blowpipe by means of which a molten lump of glass could be expanded by the breath of the workman into a bubble. Hollow vessels of a size unknown before now became possible, and it was quickly discovered that they could be made in a great variety of shapes. This invention was of even greater moment to the glass-maker than that of the wheel to the potter, and down to quite recent times no more revolutionary change has occurred in the history of the craft. From that time almost to the present glass technique has continued essentially unaltered; the word "manufacture" has been applicable to it in a literal sense. Mechanical power has come on the scene so lately that less than a generation ago a glasshouse with a large output was being carried on in the heart of London on lines differing hardly at all in many respects from those obtaining in the Middle Ages; even a Roman

glass-blower would have found there little to puzzle him in the materials or tools employed, nor would the articles made have seemed greatly beyond his powers.

Early Egyptian glass was traded all over the then civilized world and even beyond; the small "core-wound" phials are found in Crete and Greece, and beads were carried as far as Britain and the Baltic and into the heart of Africa. When the power of Rome was extended over the whole of southern and western Europe, glass manufacture spread from its original home in Egypt and on the coast of Palestine and Syria almost to the farthest limits of the Empire. Glass-houses were set up not only in Italy but also in Spain, Northern Gaul, Britain, and what is now Germany. An important centre was in Campania, and in the second and third centuries after Christ Cologne also became a seat of the manufacture from which glass of fine quality was distributed throughout the neighbouring regions and over the sea to Britain; there was a flourishing glass industry also in Picardy. This geographical expansion was matched by technical developments no less surprising, and it is almost true to say that the glass-blowers of the Roman world were acquainted with all the processes known to their successors until the quite recent invasion of the industry by mechanical power; certainly they have never been surpassed in technical skill and æsthetic sensibility, even if they were obliged to achieve with much labour what, owing to mechanical aids, can now be done with a much smaller expenditure of human energy.

Anything like a complete survey of Ancient Roman glass would be impossible within the limits of this book; only the more significant types can be referred to. With the introduction of the blowing-iron transparent glass first began to be made. The earliest Roman glass was of the type in which the alkali employed is soda; it was composed essentially of silica, soda and lime. Coloured glass was made, as in earlier ages in

Egypt, by adding to these substances the various staining oxides to which reference has already been made, but of the vast quantities of glass that have come down to us from the first few centuries after Christ the greater part has no colour other than that due to impurities in the sand employed; a certain iron content is almost always present, and to this is due the green tone of greater or less intensity which is characteristic of the commonest kinds of transparent glass, not only of the Roman period. It was quickly discovered that this greenish tone could be counteracted by adding a small proportion of manganese to the composition, and some Roman glass is almost colourless.

A sound judgment of the capabilities of the material is almost invariably shown even in vessels made in common bluish-green glass for the most ordinary uses and entirely devoid of ornament; there is æsthetic satisfaction to be found in the small phials, bottles, cups and bowls dug up all over the territories of the Roman empire, or the globular cinerary urns with conical lid and the large cylindrical or square wine-jars, with corrugated handles which have been likened to celery-stalks, found in graves of the first and second centuries. The last-mentioned vessels are evidence of the use of moulds for giving shapes other than circular to the expanding bubble of "metal" (as it is called by the glass-maker) on the blowing-iron. The same contrivance was used for obtaining patterns in relief. The earliest relief-moulded glasses are small bottles with Medusa heads, rosettes, and other ornaments, made probably at Sidon; to judge from the Greek inscriptions moulded on some of them they are the work of Greek or Hellenized artisans, of whom a certain Ennion seems to have been one of the most prolific, with a large overseas trade. Moulded signatures are found at a later date on ordinary useful wares made, probably at Boulogne-sur-Mer, by Gaulish glass-blowers such as Frontinus, the name of whose workshop often occurs

under the base of cylindrical jars with horizontal reeding like the hoops of a barrel.

Far more interesting and attractive is the decoration produced by manipulation of the " metal " in its viscous state with the help of tongs and other tools. The bubble itself could be pinched or pushed into a diversity of shapes, or " metal " drawn out into threads could be wound round it or applied so as to form zigzag or network patterns, or buttons could be stuck on and impressed with small moulds to form lions' masks, rosettes and other relief ornaments. Again, spots or

Fig. 13*a*, *b*.—Two Roman cups (Victoria and Albert Museum)

embossments could be dropped on to the surface in " metal " stained in the wide range of colouring which already in Roman times was available to the glass-maker; some of the loveliest Roman glasses are the bowls and beakers in shapes of simple dignity to which interest has been added by studding the surface with a few spots of blue, green or purple placed with unfailing æsthetic judgment (fig. 13*b*). Staining of the entire substance is also the chief beauty of much Roman glass; this is true conspicuously of certain saucers in the form almost of a shallow segment of a globe, without a foot-ring, and slender beakers rising with a slight convexity from a small foot, which were amongst the products especially of Alexandrian glasshouses of the first century after Christ. Objects of this class some-

times have simple decoration done by a technique anticipating that of the German glasshouses of the seventeenth century and their imitators, namely, engraving on the wheel; a band round the edge of a saucer, or a horizontal line or two breaking up into well-proportioned zones the elevation of a goblet (fig. 13*a*), serve to enhance their austere beauty of shape. We have here an important new development in that the work can only be done when the "metal" has been reduced by cooling to a hard condition. The same technique—that of the gem-engraver—was used with astounding skill to grind out of a solid mass of coloured glass vessels of highly complicated form; by this laborious process were fashioned cups with high foot and two ring-handles reproducing a shape first made in silver, as exemplified in the treasures discovered at Hildesheim and Boscoreale.

It is perhaps in the sphere of colour that the glass of classical antiquity surpasses the achievements of any later period; only in the windows of mediæval cathedrals has equal glory of colour been attained. Not only were vessels made of a single colour but a great variety of polychrome decoration was produced by elaborating Ancient Egyptian processes. We have seen how the core-wound flasks of the Eighteenth Dynasty were decorated with inlaid stripes by heating and pressing into the surface glass threads of various colours. A new development was now introduced; canes and rods of different colours were fused together in bundles (sometimes spirally twisted), and then sections were cut at right angles or slantways to the direction of the rods; by embedding in a sheath of colourless glass a number of such rods or segments assembled inside a hollow mould, it became possible to produce saucers and bowls veined in imitation of agate or other semi-precious stones, or those studded with variegated stars and rosettes of the type to which, in modern times, the Italian name of *millefiori* has been applied. Another

kind of mosaic glass was made by embedding on the surface of the heated bubble chips and shreds of various coloured glass in kaleidoscopically fortuitous arrangement. These products of Alexandrian and Italian glass-houses of the Augustan age were treasured as works of art by Roman citizens even in a time when glass must have been as common in their houses as fine porcelain is in the modern world.

It may be mentioned here that the brilliant iridescence often found on ancient glass, particularly on the commonest kinds of transparent greenish glass, was not intended by their makers but is the result of decomposition of the "metal" through burial; where suitable conditions exist these rainbow hues will form themselves on certain kinds of modern glass after no long period of interment.

A high degree of skill was called for by another difficult process introduced at Alexandria in the same period. This was the production of a design in two colours by coating a vessel with an outer layer of a different colour and then partially grinding away this layer on the engraver's wheel; the coating was obtained by dipping the vessel into glass of the desired colour in a molten state. The result of the two proceedings when finished was a vessel of one colour with relief ornament of another. The most famous and most important known example of this technique, which must have been difficult and costly, is the Portland Vase, found in a marble sarcophagus of the third century under a tumulus opened by command of Pope Urban VIII (Maffeo Barberini); its classical designs, in white cameo relief on a blackish-blue ground, are familiar from the copies made in pottery by Josiah Wedgwood (see p. 46) and countless imitators. Fragments dug up in Egypt prove that reliefs in more than one colour were sometimes applied to a single vessel. The wheel was also employed for simple linear decoration, as already mentioned, and for faceted and honeycomb

patterns similar to those of modern cut glass; figure subjects were also sometimes cut in intaglio or more often rendered by line engraving. Such cut and engraved glass was made especially in the Rhineland, at Cologne and Treves, in the third century; the discovery of a cutting-wheel of stone together with fragments of facet-cut vessels on the site of a Roman glasshouse at Wilderspool in South Lancashire proves that the technique was practised in Britain as well. To the Cologne region belong also the extraordinary *tours de force* in the shape of goblets with inscriptions and other designs forming a network standing free, and attached to the surface of a cup or bowl only by a few connecting struts. Another anticipation of later technique was in the use of designs, including figure-subjects, painted on the surface in enamel colours—pigments, that is to say, consisting of coloured glass ground into a powder and mixed with an oily medium; a fragment of enamelled glass has been found on the farthest confines of the Empire in one of the forts on the Roman Wall in Northumberland.

It remains to mention another kind of Ancient Roman glass, which is significant not only for its technique but also for its great importance as a side-light on the early history of Christianity. In the catacombs of Rome have been found, affixed to the sepulchral recesses, large numbers of small glass disks with designs scratched through gold leaf embedded in the substance of the metal; they originally filled the bottoms of cups or bowls, or were dispersed over their sides. The engraved subjects on some of the earlier examples, dating perhaps from the second century, are mythological, but in the great majority of cases, like the fresco paintings on the vaults of the catacombs, they relate to Christian symbolism or Bible history and have a bearing on the development of Christian dogma. Some of the finest engravings, from about the end of the fourth century, are portraits carried out in

minute detail; a first-rate example may be seen at South Kensington. The technique doubtless originated at Alexandria, but most of these glasses have been found, and were almost certainly made, in Rome.

CHAPTER II

Decline and Revival

BOTH in the East and in the West Roman traditions of glass-making survived to form the basis of the far less skilful craftsmanship of the Middle Ages, although many centuries were to pass by before any approach was made to Roman glass either in quality of material or in variety of technique; in fact, glass ceased for a time to be the material of vessels for luxurious uses, its place being taken by precious metals or bronze. In the Syrian coast-region the manifold forms of decoration obtainable with the pincers continued in favour down to the Islamic period. In Europe the Rhineland took the lead in glass craftsmanship, which seems to have been introduced there by Levantine immigrants. Here also pincered applied ornaments were employed with good effect. Some forms of great beauty made their appearance in the north-west of the Empire already in the second century; notable amongst them are jugs with a flat-based conical body, often decorated with well-spaced and delicate ribbing either vertical or spiral, long tubular neck divided by a slight constriction from the body, and strap handle strengthened by a spine applied along its length, drawn downwards into a long spur giving strong attachment to the body and often notched into a comb. A jug in the British Museum, found at Barnwell near Cambridge, and another of deep yellowish-olive tone in the Royal Museum, Canterbury (Plate XIV, B), may be cited as examples of outstanding distinction. Both Frankish and Anglo-Saxon graves of

the sixth and seventh century, the period of the first Teutonic settlements in England, have yielded quantities of vessels which show that although the quality of the metal is not equal to that of the great age of Rome, the principles of glass technique continued to be well understood. Some shapes of drinking-glass peculiar to the Teutonic world make their appearance at this time. Strangest of these is the small-based conical beaker decorated with rows of hollow excrescences shaped like an elephant's trunk. Another characteristic form is the round-based waisted tumbler made to stand only when inverted and intended to be emptied of its contents at a single draught; the same is the intention of the glass imitations, often elaborately ornamented in relief with transverse bands and zigzags, of that essentially northern utensil the drinking-horn, and of the footless beakers of narrow tapering shape, sometimes decorated with fine threads applied lengthways as ribs or elongated scallops, which are amongst the loveliest of all things made in glass. From these products of the Dark Ages the German glasses of the mediæval period were the natural descendants.

Revival in the art first came, however, not in Europe but in its earliest home, in the East. After the faith of Islam had spread victorious over a large part of the Mediterranean, Egypt under its Fatimite rulers in the tenth and eleventh centuries was brought once more to a high degree of civilized culture. Alexandria again became a centre of the production of fine glass, but glass-making seems to have been widespread over the Islamic world; not only in Egypt and Syria but also in Mesopotamia and Persia excavations have yielded glasses, and of more than one variety, which although hardly distinguishable appear to be of local origin. As in Europe in later times so in the Near East glass-blowers wandered from land to land carrying with them their technical secrets, so that it is rarely possible

to classify their wares on geographical lines. Common to most of them is a relatively poor quality of metal, full of bubbles and seldom free from a pronounced colour, either greenish or of a pale amber tone, due to impurities in the materials used.

Amongst the earliest Near-Eastern glass of interest are small bowls, cups and other vessels with small ornaments stamped on applied pads—mostly " prunts " like a raspberry, less often Arabic inscriptions, animals or birds; technically akin to these are bowls, in which similar motives are produced in sunk outline by pinching with tongs like a wafering-iron on each arm of which the same design stands out in relief. On a higher plane altogether are the glasses with wheel-cut decoration. Glyptic art was brought to an unsurpassed degree of refinement at Alexandria in the tenth and eleventh centuries; a rock crystal ewer in the Victoria and Albert Museum, with reliefs of gazelles attacked by eagles, and another in St. Mark's, Venice, with designs of the same order, which was amongst the treasures brought from Constantinople, are well-known examples of this splendid art. From crystal-cutting the technique was transferred, as in Roman times, to glass and was practised especially at Alexandria, although there is reason to think it was not confined to Egypt. The glass objects with wheel-cut decoration are of every degree of elaboration; from tiny phials about an inch high cut square and faceted, and long-necked bottles of austere beauty with decoration limited to one or two horizontal grooves in the neck and a row of discs (fig. 14) or pine-cone motives round the body, they range to imitations of the crystal ewers mentioned above, as proved by an example, sadly shattered, in the Buckley Gift at South Kensington; to this surpassingly skilful piece of work no parallel has hitherto been recorded. The name " Hedwig glasses " has been given to a number of heavy glass beakers, of the eleventh or twelfth century, shaped like a modern tumbler, with

volutes and stylized lions or eagles cut in strong relief, which have been preserved in cathedral treasuries in Europe; some of them were traditionally associated with St. Hedwig of Silesia, who is said to have used them for the miracle of changing water into wine.

In coloured glass also the achievements of Roman

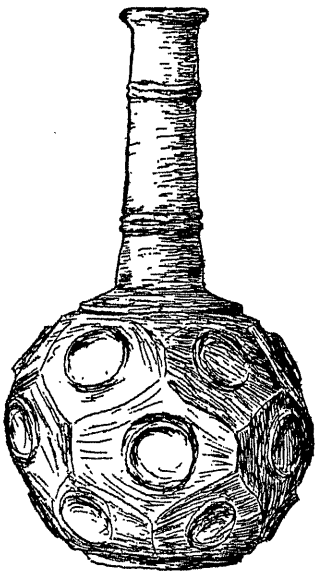
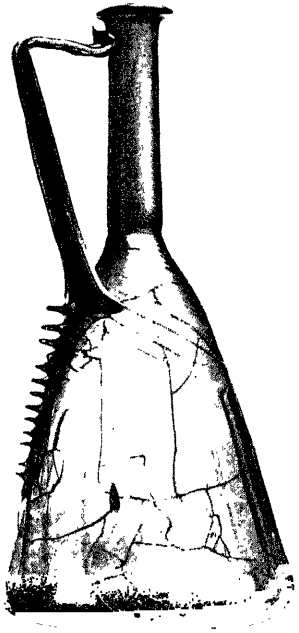


Fig. 14.—Egyptian (Fatimite) cut-glass bottle
(Victoria and Albert Museum)

times were equalled if not surpassed in the late mediæval glasshouses of Syria and Egypt. The ancient Egyptian technique of inlaying zigzag bands was revived, but never with great success. It was in painting that the Islamic glass-makers excelled, and in decoration of this kind an entirely new technique was introduced, in Egypt; painting in lustre colours similar to that on the earthenware of the period (see p. 63) was, under the Fatimite rulers and perhaps earlier, practised also

A. Glass lamp, Syrian
(Victoria and Albert Museum)
(*Page* 139)



B. Glass jug, Ancient Roman (Royal
Museum, Canterbury)
(*Page* 135)

on glass. Metallic pigments producing when fired a golden iridescence were used on white or coloured glass for Arabic inscriptions, floral and animal designs analogous to those on the pottery. Rare examples exist also of glass painted with gold itself, in the manner of the early Christian gilt glasses; a fragmentary bottle in the British Museum, attributed to the twelfth century, has decoration finely executed in gilding, with details scratched away with a needle-point, consisting of dancing girls amongst trees and eagles, in zones separated by an Arabic inscription giving titles believed to be those of one of the Atabeks of Mesopotamia.

The great glory of the craft in the Mohammedan east was, however, the revival of painting in enamel colours which, as we have seen, had been practised in Roman times. The most famous examples of enamelled glass of this period are the lamps made for lighting mosques, especially in Cairo, of which the Victoria and Albert Museum possesses a collection unsurpassed in Europe (Plate XIV, A). They are of a more or less stereotyped shape, of bulbous form, contracting to the spring of a wide flaring neck, and supported either on a high conical foot or on a low convex ring. A usual appurtenance of the mosque-lamp was an egg-shaped ornament with a hole at each end, made as an embellishment of the chain on which the lamp was hung and enamelled in the same style as the lamp itself. Suitable inscriptions from the Koran or titles of the Sultans or other persons by whom the lamps were given to the mosque are usually the chief feature of the design, and from these inscriptions they can often be approximately dated. The earliest on record shows that the lamp which bears it was made for a mausoleum in Cairo erected in 1285–6; by the end of the fourteenth century the art of glass-enamelling in the Near East was in full decline. Comparison with Persian and Syrian pottery justifies a date early in the thirteenth

century for certain lamps sparingly painted in several colours with tiny scattered figures of horsemen, birds or fishes and slight borders of cresting. The normal type of design on the later lamps consists of friezes of inscription, in characters of majestic proportions backed by flowing scrollwork with arabesque foliage and sometimes interrupted at intervals by medallions containing flowers or heraldic shields. In the period of decline after the invasions of Mesopotamia and Syria by the Mongols under Hulagu Khan in 1358, Chinese influence proclaims itself by the introduction in the design of phœnixes and Buddhist lotus-flowers, and inscriptions are sometimes entirely displaced by an all-over pattern of flowers and foliage; the rich polychrome enamels and gilding of the earlier lamps tend to become restricted to red, used, as from the beginning, for drawing the outlines, and blue for the background.

Although mosque-lamps are the most conspicuous, they are by no means the only form of vessel decorated in this manner. The art is displayed with no less splendour in two-handled flasks, ewers and bottles with long slender neck, and amongst the loveliest of all recipients for it are beakers, generally tubular in the lower part and conical above. Some of the earliest of these beakers, dating from the thirteenth century, are shown by their decoration to have been made for Christian use and have been preserved in the treasures of Western churches, to which doubtless they were given by returning Crusaders. In the British Museum are two splendid examples, one showing the Virgin and Child enthroned between St. Peter and St. Paul, the other with three German shields of arms and the signature apparently of an Italian artist working in the Levant. Another exceptional piece of the same period is a fragmentary dish in the Historisches Museum at Basle on which is painted the Holy Roman Emperor enthroned, orb in hand. But of all the many glasses

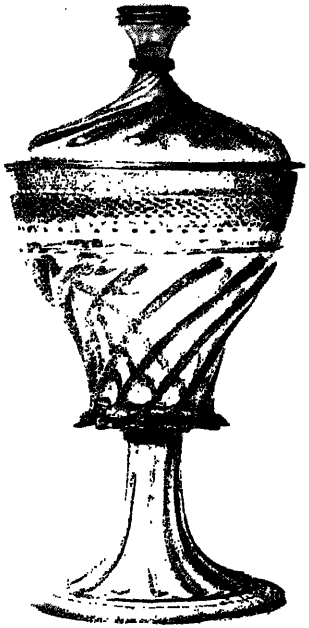
brought from the East and carefully treasured in Europe, often in costly gold or silver-gilt mounting, none is more famous than the beaker known by its romantic name of the Luck of Edenhall and until recently kept in the ancestral Westmoreland home of the Musgrave family. It is painted in blue, red, green, white and gold with a rich symmetrical pattern of interlaced arabesques of great beauty; it owes its wonderful state of preservation to the case of richly stamped leather made to contain it, probably in England, about the end of the fourteenth century. Where these various types of enamelled glass were made is a question to which no certain answer has hitherto been found. It was at one time supposed that the numerous lamps formerly to be seen in the mosques of Cairo must have been made in Egypt, but all available evidence points to the conclusion that they were imported from abroad and that in Syria, and particularly in the cities of Aleppo and Damascus, the home of this wonderful revival of the art of painted glass is to be sought.

Mention may be made here of the only other development of the craft in the Near East which is of any interest. In the seventeenth and eighteenth centuries glass was made in Persia in distinctive shapes which though very restricted in range are of great beauty; chief amongst them are ewers with long curved spout, and bottles for sprinkling rosewater, bulbous in form and often spirally reeded, with slender sinuous neck ending in an orifice somewhat resembling in shape the flower of an arum lily. The "metal" is sometimes colourless, but more often stained to pleasant tones of blue, amber and violet. A rare type perhaps made or decorated by Persian craftsmen at the court of the Moghul emperors in India, has rich gilt design of flowers and cone-pattern.

With the decline of glass-making in the Levant the scene changes to Italy. The shores of the Venetian

lagoons provided, in sand and kelp (for soda), two of the essentials of the craft, and Venice or the neighbouring island of Murano, to which, owing to the danger of fire in the crowded city, the glass-blowers were confined from the thirteenth century onwards, has been from the Middle Ages until to-day its most famous European centre.

Before the fifteenth century, however, the output seems to have consisted only of window-glass, " white " (that is to say, colourless) and coloured, beads, and vessels in plain glass for ordinary use. The Venetians gained one great advantage over mediæval glass-makers in other parts of Europe by discovering how to produce a colourless transparent " metal " which, from its likeness to rock-crystal, they called *cristallo*. Venice glass begins to be important in the history of art only on the eve of the Renaissance, when the process of enamelling already practised by Italian goldsmiths was adapted for painting on glass; the impetus doubtless came from the desire to emulate wares imported from the East, but no evidence has yet been brought to light to prove that the Venetians learned the technique directly from Oriental masters of it. The earliest examples of the new art in Venice date from about the third quarter of the fifteenth century (Plate XV, C); they consist of goblets in coloured glass—blue, green or amethyst—painted with allegorical subjects such as the "Triumphs" of Petrarch forming a continuous frieze round the bowl, or, where betrothal or wedding gifts were intended, with portrait heads of the lovers in medallions separated by foliage. The shapes are those of contemporary metalwork, entirely Gothic in character; the same strong forms persisted till the end of the century (Plate XV, A). Colourless glass then began to be employed in preference to coloured, and the enamelling tended to follow certain stereotyped designs, such as horizontal bands or overlapping scales rendered in small spots of various colours, set off by

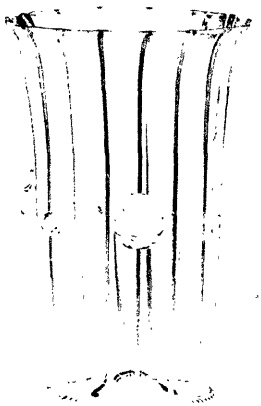


A. Glass cup, Venetian
(British Museum)
(*Page* 142)

B (bottom, left). Glass beaker, Netherlandish

C (bottom, right). Glass beaker, Venetian
(*Page* 142)

(B, C, Victoria and Albert Museum)



gilt bands having patterns picked out in them with a needle-point.

Noble as they are, these earliest Venetian glasses departed little in form from the types set by the gold- and silversmith; emancipation came, with advance in skill and understanding of the material, soon after the beginning of the sixteenth century. From this time on

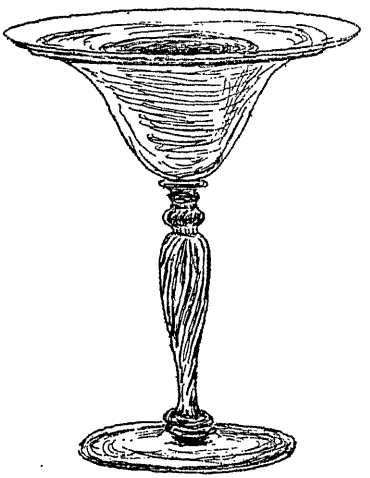


Fig. 15.—Wine-glass, Venetian (Victoria and Albert Museum)

for a hundred years and more the Venetians were the supreme masters of glass-blowing technique; favoured by a soft readily fusible "metal", they almost excelled their Roman forerunners in the ease and sureness with which they guided their ductile material into frail ethereal shapes of endless variety and consummate loveliness. Vessels of many kinds were fashioned out of the bubble on their blowing-irons, but the wine-glass on its slender stem, now for the first time receiving the shape which has ever since been accepted as most appropriate, is the typical exponent of their skill (fig. 15).

Often the form itself is its only adornment, the members passing into one another without the angular divisions of the earlier goblets; if decoration is added, it consists of one or two simple fillets round the bowl or foot, perhaps in blue, the only colour admitted at this stage. The bowl in its delicate tenuity suggests comparison with a flower, and the petals of flowers are hardly more diverse than the varieties of subtle curve given to its outline; the stem as a rule is composed of a slim baluster separated by one or two rounded knops or collars ("mereses", in glass-blowers' language) from the bowl. Towards the end of the sixteenth century there was a departure from this classical simplicity. Moulds were brought into use for producing ribs on the bowl or reliefs of festoons and lion-masks on the baluster; the stem was often flanked by wing-like or cockscomb ornaments pinched into serrations by deft work with the pincers. The fancy of the craftsmen manipulating the plastic "metal" in its viscous state was given free rein in the creation of all kinds of grotesque and extravagant shapes; birds, flowers, fishes, ships were amongst the forms which the obedient substance was made to endue. The movement went on step by step with the advance in taste from the classical austerity of the High Renaissance to the somewhat bombastic complexities of seventeenth-century Baroque.

Though basing their technique principally on the unrivalled ductility of their *cristallo*, the Venetians made experiments in every direction, retrieving nearly all the processes discovered in Roman times, and since to a large extent forgotten. The opaque white enamel obtained by mixing tin in the metal which had been only sparingly used by their predecessors, they exploited in every possible way under the name of "milk-glass" (*lattimo* or *latticinio*). In the form of bands or fine threads they used it with admirable effect to make vertical white stripes on bottles and drinking-vessels; by twisting these threads or laying them dia-

gonally across one another they produced all manner of network and filigree patterns. In the eighteenth century jugs, plates and even tea- and coffee-cups and saucers were made entirely in this white "metal" in competition with porcelain, and were, like porcelain, often painted in enamel colours; a set, now dispersed in various collections, of white plates with views of Venice in red monochrome was bought and brought to England by Horace Walpole. Glass was made to imitate the markings of semi-precious stones like jasper and chalcedony; examples of this type were in the possession of King Henry VIII at Westminster. An effect unknown to the Romans was that of avanturine glass, the surface of which was spangled with metallic sheen by rolling the heated bubble of glass in copper filings; another new type, invented in the sixteenth century, was ice-glass, made by plunging the heated bubble in water and then reheating it and blowing it again so as to fuse and distend the cracks thereby caused on its surface. The only important process not employed at Venice until the eighteenth century was that of cutting, to which the Venetian type of "metal" did not lend itself; engraving with a diamond was also less often practised at Venice than elsewhere.

In spite of very severe penalties for desertion imposed by their rulers, the Venetian glass-blowers from time to time emigrated beyond the Alps, and glass of the Venetian type (*façon de Venise*) was made in the sixteenth and seventeenth centuries in several other countries. Amongst their rivals were a colony of glass-makers, originally from France, settled since the Middle Ages at Altare, near Genoa, whose statutes provided for sending out representatives periodically to ply their craft in other lands. In the Netherlands glass of the Venetian kind was made from about 1550 onwards, first at Antwerp, then at Amsterdam, Brussels, and, by an offshoot from the last-named city, at Liége,

which continues to the present day to be one of the greatest centres of the industry. In the Austrian Tyrol a glasshouse was started in 1534 at Hall, near Innsbruck, and came under the protection of the Archduke Ferdinand. In Germany glasses were made at Cassel which were formerly often mistaken for Venetian; this Hessian glasshouse, which seems to have had only a very short existence towards the end of the sixteenth century, made especially wine-glasses with tall stems composed of cord-like rods, often enclosing twisted white enamel threads, which are contorted into elaborate and sometimes rather formless figures spreading out sideways into pincered ornaments recalling the head and comb of a cock. Effective use was also made of vertical white stripes in the Venetian manner for the decoration of beer-tankards and beakers. Tall glasses with square facets moulded in relief and outlined with white enamel spots were, in the sixteenth century, a speciality of the Spessart district, near Darmstadt. Of the penetration of Venetian glass-making to England something will be said on a later page.

In Germany, as we have seen, Roman traditions endured until in the Middle Ages the art had sunk to the level of a humble craft, carried on in forest regions where there was a copious supply of wood fuel and producing wares with no pretensions to refinement. The "metal", in which the alkaline constituent was provided by potash obtained by burning wood (in particular beech), is transparent but of a greenish tone given by a strong iron content uncounteracted by any decolouring agent. This unavoidable green hue is admirably suited to the sturdy shapes of the mediæval vessels and was doubtless deliberately intensified. The characteristic form for this "forest glass" (*Waldglas*), as it was called, is a beaker or jar of slightly bulging outline with flaring top and a pincered frill round the base (Plate XVI, B); it is generally orna-

mented with rows of applied pads drawn out upwards into a point, or studded with smaller spine-like projections, the appearance being that of a cabbage stem with the stumps of stalks from which the leaves have fallen away. From this form of beaker was developed the typical German wine-glass, the *Roemer*; this has a convex bowl, stout shaft studded with raspberry "prunts" like those of the early Islamic bowls, and high-spreading foot skilfully made of a thread of glass in constantly widening coil (as time went on the process was simplified by winding the thread round a wooden cone and at last, in modern imitations, by substituting for the spiral a series of narrow contiguous rings produced by blowing the foot into a corrugated mould). In both colour and shape these early German drinking-glasses have great æsthetic merits which assured their continuance in favour long after more refined fashions had penetrated the country from abroad.

In the sixteenth century the wealthy citizens of South Germany drew large supplies of fine glass from Venice, including enamelled glasses which were often painted to order with the arms of the purchasers. In due course the art of enamelling was itself introduced into the German glasshouses; it was the more readily adopted because the type of glass made in Germany was much harder and less fusible than the Venetian, lending itself much less readily to plastic treatment. From about 1550 onwards until well into the eighteenth century great quantities of painted glass were made in several parts of the country; the chief centres of production were the forest regions, along both sides of the mountain chains dividing Bohemia from Bavaria in one direction and Silesia in another; Kreussen made glass with designs in some cases almost identical with those painted, perhaps in the same workshops, on the stoneware which has already been mentioned (p. 38). Saxony and Hesse were amongst other districts which

had a share in the manufacture. Whilst a few local distinctions can be detected—the Bohemian "metal" for instance was as a rule of a smoky brownish tone, whilst that of Hesse was greenish—the wares of the various regions have much in common. The most popular form of drinking-vessel was the *Humpen* or *Willkomm*, a stouter form with domed lid, of the tall cylindrical *Stangenglas* ("pole glass") offering more generous superficial space for painted decoration, which tended to conform to a few stereotyped themes. Chief amongst these was the *Reichsadler*, the eagle with two crowned heads and, displayed on its outspread wings, shields with the arms of the member states and cities of the Holy Roman Empire; on the earlier examples (the earliest known bearing a date—1571—is in the British Museum) the eagle has on its breast a crucifix, on the later this is replaced by an imperial orb. Other popular designs are figures of the Electors each in an arched compartment, the Twelve Apostles, the Cardinal Virtues, biblical subjects and hunting-scenes. Some, such as a glass in the Victoria and Albert Museum, dated 1616, with coopers at work, were made for guilds or their members and illustrate their trade occupations. About the end of the sixteenth century coloured glass, especially blue, was sometimes enamelled; there are attractive examples of blue wine-jugs as well as beakers which seem to have come mostly from Bohemian glasshouses. In Saxony enamelling was done on glass decorated in the Venetian manner with twisted threads of white enamel incorporated in the "metal". In the eighteenth century the spread of other distinctively German methods of decorating glass presently to be described ousted enamel painting from favour except as a branch of peasant art; as such it has been employed till modern times, especially on the eight-sided bottles for spirits or milk and the small tumblers to be found in Switzerland and other Alpine regions. In general it may be said of the various classes

of German enamelled glass that they rely for their appeal less on fineness of execution or originality of design than on the rich decorative effect of their gay, well-distributed colours.

It was not, however, in the direction of enamel painting that Germany made its distinctive contribution to the development of the art as a whole. This came about when, towards the end of the seventeenth century, it was discovered, probably in the region of Bohemia and Silesia, that by adding to the composition a larger proportion of lime in the form of chalk and by using manganese as a decolorant, a " metal " could be obtained no less solid than the old greenish " forest glass " but as clear and colourless as rock crystal, and by its toughness equally capable of receiving glyptic decoration on the stone-cutter's wheel. Formerly engraved decoration had been limited to surface scratching with a diamond, a process sometimes enlisted at Venice but favoured late in the sixteenth century especially at Nuremberg. Mention may here be made in parenthesis of a diamond-engraved *Stangenglas* (see p. 148) in the Victoria and Albert Museum. It is engraved with the date 1582 and the name and arms of William Smith, later Rouge Dragon Pursuivant in the Heralds' College under Queen Elizabeth, together with the arms of his wife, daughter of a Nuremberg citizen. Though born in Cheshire, Smith was for some time in Germany and kept an inn at Nuremberg, and in spite of a close resemblance in style to the engraving on glasses made in London (see p. 161), there seems little reason to doubt that this glass illustrates the art as practised in Germany at the time of the date it bears.

It seems to be well established that the revival of an art already known, as we have seen, in the East in Roman times and again in the Middle Ages, is owing to the credit of a gem-engraver named Caspar Lehmann who from 1588 onwards worked for the art-loving

Emperor Rudolph II. At this sovereign's court at Prague gem-cutting and the carving of semi-precious stones enjoyed high favour. Lehmann conceived the idea of extending from rock crystal to glass the technique of wheel-engraving. Glasses engraved by him are rare. From comparison with his signed works and on grounds of internal evidence it has been possible to identify as his also three panes in the Victoria and Albert Museum; two of these bear dates (1619, 1620), whilst the third with the subject of Perseus and Andromeda displays shields with the initials of Christian II, Elector of Saxony, and Princess Hedwig of Denmark, and was doubtless occasioned by their marriage in 1602. The imperial privilege for glass-engraving granted to Lehmann was bequeathed by him to his assistant Georg Schwanhardt, who moved from Prague to Nuremberg, where he died in 1667. At the latter city Schwanhardt established a school of glass-engraving which was carried on under his son and others into the eighteenth century. These artists decorated with their engraving covered goblets of an elegant form, with tall stem composed of tiers of hollow rounded knops separated by flat discs, which seems to have been peculiar to Nuremberg; sometimes the bowl and foot of these goblets were in emerald-green glass and the stem colourless, as in an example at South Kensington with engraving attributed to Hermann Schwinger, who died in 1683.

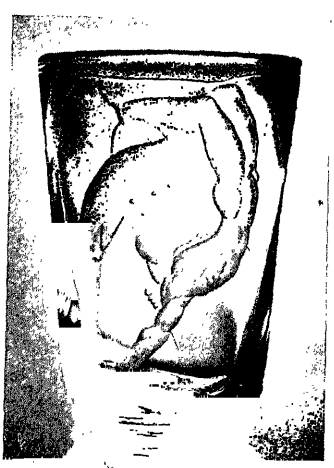
The improvement in the "metal" by the increase in its lime content, referred to above, provided an excellent medium for the engraver's art. The new mode of decoration found ready adoption in the glasshouses of Bohemia and from there it soon spread to all parts of Germany; it was not, however, till the last quarter of the seventeenth century that it was brought in the Bohemian region to the high level of execution reached by Schwanhardt and his followers. In Silesia a refinement of the technique was invented in the form of high-

A. Engraved glass beaker
(*Page* 153)

B. Green glass beaker, German
(*Page* 146)

(A, B, C, Victoria and Albert Museum)

C. Sweetmeat-glass, cut glass, English
(*Page* 165)



D. Engraved glass beaker, Swedish (Orrefors)
(*Page* 171)

relief cutting in the manner of a cameo, on goblets blown expressly to an unusual thickness; for these, heavy baroque scroll foliage was the chosen theme, the resemblance to carved rock crystal being here particularly apparent. About 1700 Bohemia began to take the lead with engraving of fine quality which won deserved renown all over Europe. Scattered flowers and swags of fruit, or the characteristic baroque scrolls and strapwork for which the fashion was spread by German books of ornament based on the designs of the great French engraver Jean Bérain, were combined with small figure-subjects or landscape scenes of endless variety. The goblets which more especially were chosen for this kind of embellishment were very different in form from those of Nuremberg; dominant amongst them was a bowl with profile recalling a thistle-flower on a solid faceted baluster stem. In the second quarter of the century Silesia came to the fore with glasses on which designs were engraved on shapes previously cut with faceting carried from the stem right up to the lip, in the form of flat gadroons like the staves of a tub. A pretty speciality of Silesia was the sweetmeat-glass with baluster stem and boat-shaped bowl cut at one end into a shell-like poop curling inward at the apex. It is interesting to note also that already in this period "presents from" this, that and the other watering-place were made for sale to visitors, notably at Warmbrunn, which possessed an excellent glassworks as well as a spa.

The art introduced by Lehmann quickly spread to other glass-making districts throughout Germany besides Bohemia and Silesia. The foremost exponent of relief cutting was Franz Gundelach, who from 1694 onwards worked in glass as well as semi-precious stones at Cassel, in a workshop established by the Landgrave of Hesse; he carved mythological and other figure-subjects with wonderful refinement of detail on the bowls of goblets, the stems and covers of which he

enriched with massive acanthus foliage and gadroons, in the sumptuous baroque manner of the period. At Nuremberg the art was carried on by Anton Mäuerl (1672–1737), who has a special significance from the fact that he worked between 1699 and 1710 in London. As no glass decorated by his hand has as yet been identified in England, it is possible that Mäuerl earned his livelihood whilst in London chiefly by another art of which he was master, that of paper-cutting; but it is not unreasonable to suppose that English glass-cutting is indebted to him as one of its founders. Another contact with England was at the Lauenstein factory, in the duchy of Brunswick, founded in 1701, where amongst other foreign hands was employed one from England belonging to the Tisac or Tyzack family (see p. 160), and the English practice was employed of firing the furnaces with coal.

A very important part was played by the glasshouse established in 1674 under the patronage of the Elector of Brandenburg (the "Grosser Kurfürst", Frederick William) at Drewitz, near Potsdam, whence it was moved five years later to the immediate neighbourhood of the residence-town. The high position taken by the Potsdam glasshouse was due to the distinguished scientist, Johann Kunckel, by whom for several years it was directed. Kunckel brought to practical fruition the abortive discovery of another experimenter, Andreas Cassius; this consisted in staining glass to a ruby red by means of chloride of gold ("purple of Cassius"). This ruby glass was the pride of the Brandenburg factory and was employed to make a great variety of goblets, beakers, vases and bottles; these were decorated either with pincered longitudinal ribs, admirably setting off their dignified baroque forms, or with engraved designs. Their effect was sometimes enhanced with gilt mountings added to them at Augsburg. Glass was made by Kunckel in several other colours besides ruby. He also supplied

glass of fine quality for the workshop in Berlin of Martin Winter, who was appointed glass-cutter and engraver to the Elector in 1680. Winter took into partnership his nephew Gottfried Spiller. Characteristic of their work are mythological and other figure-subjects, cut in deep intaglio, carried round the whole circumference of a beaker or vase; massive covered beakers with bacchanalian *putti*, to be seen in the Victoria and Albert Museum, are attributed to the senior and junior partners respectively (Plate XVI, A). Another interesting glass at South Kensington, with allegorical subjects relating to the Treaty of Lund, between Sweden and Denmark (1679), bears the signature of a pupil of Spiller, Heinrich Jäger.

Amongst the numerous other local variations of technique devised in Germany one or two call for special mention, as examples of them are often to be met with in museums. Enamel painting was brought to a special degree of fineness by various artists who in this way decorated in their private workshops not only glass but also fine earthenware and at a later stage porcelain as well. The earliest of these fine enamellers was Johann Schaper, who settled at Nuremberg in 1655 and died in 1670. His style was a development of the Dutch window-painting of the sixteenth and seventeenth centuries, and he himself actually painted window glass, both in leaded panels and in single "monolith" panes; a pane with the Crucifixion in black monochrome, in the Victoria and Albert Museum, bears his initials and is dated *Regensburg*, 1655 (Schaper is recorded as having been at Ratisbon about that time). This black painting (*Schwarzlotmalerei*) he afterwards used extensively for the decoration of drinking-glasses, chiefly small cylindrical goblets resting on three depressed balls and having a domed lid with multiple knob. His manner is as delicate as that of the miniature portrait-painter. For his subjects he chose most frequently landscapes with ruins, often

a fountain and small figures, all rendered in minute detail. Schaper was followed in his peculiar art by others such as Hermann Benchertt and Johann Ludwig Faber, signed examples of whose work may be seen in London museums.

In the middle of the eighteenth century another technique was invented in some locality hitherto unidentified in Bohemia; its frequent employment for rendering sacred subjects, in addition to the hunting-scenes which were also favoured, makes it likely that its practitioners were amateurs belonging to some monastic community. The process consisted in scratching designs through gold leaf and encasing them between two layers of glass, in the manner of those of the early Christian medallions (see p. 133), but by an essentially different technique; whilst these latter were fixed by fusing over them an outer layer of transparent glass, the *Zwischengoldgläser*, as they are called, are small conical tumblers with double walls. The inner wall has the gilt design, in silhouette with scratched details, on the outside, the outer wall is ground to fit exactly over it and cut externally with longitudinal faceting, and the one overlaps the other at the top and is secured inside it by means of an unfired adhesive. A disc made separately and fixed under the base of the inner glass is often washed over on its upper surface with translucent pink or green lacquer, so that the gilt design inside the base of the glass is seen against a coloured background.

CHAPTER III

Spain, France, and England

SPAIN and France have played a less conspicuous part in the evolution of glass than Italy, Germany, or even England. In Spain a tradition stretching back through the period of Arab domination to Roman times has continued to the present day in the production of glass with a soda content, in the form of vessels for ordinary use with decoration, where present, obtained solely by manipulation of the metal in its soft condition, before cooling. The typical Spanish wares are quite unlike those of any other land, as may be seen by a study of the small but representative collection at South Kensington. The material is more or less strongly stained with iron, varying from bluish green and brownish olive to horn colour. The typical vessels are jugs and two-handled vases with bulbous body and wide flaring neck often pinched into wavy lobes at the top, the sprinkler with ring handle at the top and two spouts—one wide for filling, the other long and narrow for sprinkling—rising vertically from the shoulder, and the peculiar conical wine-jar with long tapering spout for pouring a thin jet of liquor into the open mouth of the drinker. These vessels often display a typically Spanish exuberance in their multiplicity of handles with serrated spines and the applied frills and threads with which by means of the pincers they are ornamented. Precise classification by locality is difficult, as glass of this order was made in many

parts of Spain, but Almeria, on the coast of Andalusia, with its Islamic past, was a leading producer.

Another centre of production was in Catalonia. At Barcelona, and at Cadalso in Castile, where an offshoot of the Catalan industry was established, Venetian methods took root in the fifteenth and sixteenth centuries, and glass was made which is sometimes not easy to distinguish from the Venetian. Opaque white threads, either as plain bands or in filigree twists, were much employed for decoration, and one unmistakable class of Barcelona glass shows designs of running animals, birds and fronds painted in a peculiar scheme of enamel colours, chiefly green, yellow and white. In the eighteenth century the native types of glass seem to have passed out of favour except amongst the lower orders, and a factory was set up under royal patronage for competing with the fashions of northern Europe; after a short career elsewhere this was located from 1728 onwards at La Granja de San Ildefonso, near Segovia. Here colourless glass was made, with engraved designs, often picked out with gilding, in which Bohemian and Netherlandish influences are clearly apparent.

In France, from the Middle Ages onwards, there has been a vast production of glass, particularly of window-glass and latterly of mirrors, but little has been made in the way of vessels with decorative qualities. Normandy and Lorraine in particular have both supplied large quantities of wares, and have sent forth glass-blowers, sometimes to escape from religious persecution, to ply their craft in England and other countries. In the middle of the sixteenth century, in some locality not yet identified with certainty, enamel painting in the Venetian manner was practised; a typical example, in the Buckley Gift at South Kensington, has figures of a man and woman in the dress of gentry of the period, in red, blue, white and gold, and the words *IE SVIS A VOUS, Ferme cueur côtre fortune.* It was

perhaps brought to England when it was made, as an inscription scratched on it with a diamond in seventeenth century handwriting tells us that it was " found in a hole behind the ivy in Stoke Courci Castle " (Stogursey, near Taunton), which was destroyed in the Civil Wars. In the seventeenth century, a glasshouse was established at Nevers by the duke, Louis de Gonzague, with workmen from Altare, which was in one of his Italian domains; here amongst other things were made little figures of coloured glass which were sometimes combined in elaborate groups to represent subjects such as the Nativity and the Crucifixion. None of these French ventures was of any great importance; it was not until the latter part of the nineteenth century that France made any effective contribution to the art, in the work of an artist to be mentioned in the next chapter.

The Netherlands were remarkable not so much for their large output of glass as for certain modes of decoration there practised with pre-eminent skill. Mention has already been made (p. 145) of the glasshouses working on Venetian lines which were established in several cities, notably at Liége. On the whole, Liége glass, apart from the earlier wares made in the Venice fashion, lacks originality of form and is not in other ways noteworthy. Much of the great quantity produced there in the eighteenth century approximates in shape to the English glass of the period, but is inferior to it in quality. Holland, on the other hand, is peculiar for the great cult of glass-engraving which sprang up during the great days of Dutch prosperity in the seventeenth century and lasted well into the nineteenth. The art was to a large extent practised not on a commercial footing, but as a pastime by amateurs, many of whom were poets and other persons of literary tastes. The tool employed was a diamond point; wheel-engraving in the Bohemian manner was a later introduction, and was never brought in Holland

to the highest level of attainment. In diamond engraving the Dutch stand unsurpassed. As recipients for their skilful exercises the engravers employed both home-made and foreign glasses. Some of the Dutch wine-glasses in the Venetian manner of the second half of the seventeenth century (it may here be said in parenthesis) are quite admirable in their simple gracefulness of form; the dominant types show a bowl either bucket-shaped or conical—sometimes drawn out to the high narrow form known as a flute—and a hollow baluster stem either pear-shaped or of a slender, elegant spindle shape. When English lead glass (see p. 162) became available it soon began to make its way to Holland, and many of the later engraved glasses are undoubtedly importations from England—in some cases it would seem made specially in shapes to suit the Dutch taste. At the same time it is no surprise to learn that with the help of English workmen the Dutch took to making lead glass for themselves; Mr. Francis Buckley, to whose unflagging industry in research historians of English glass are so deeply indebted, has discovered an advertisement in a Manchester newspaper of 1739 which—quite apart from other evidence—puts this fact, long a matter of dispute amongst students of the subject, virtually beyond doubt.

The earliest Dutch diamond-engraved glasses are unsigned; the oldest with a date is of 1581, and a well-known beaker in the Rÿksmuseum, Amsterdam, with a satirical subject after a German engraving—Christ confronting the Pope—is dated 1604. To this period belong several *Roemers* (see p. 147), such as one of green glass in the Victoria and Albert Museum engraved with the arms of the seven United Provinces. The earliest of the amateur engravers to sign their names were the literary ladies, Anna Roemers Visscher (b. 1583, d. 1651), and her younger sister, Maria Tesselschade. The glasses they chose to work on were

mostly green *Roemers*; for their motives they sometimes copied birds, insects and flowers from contemporary books on natural history, but their great achievement was the adaptation to glass of inscriptions in the swinging scrolled lettering, popularized by the calligraphers of the time. The engraving of glasses with this calligraphic ornament was adopted also as a diversion by Willem Jacobsz van Heemskerk (1613–92), a cloth manufacturer of Leyden. Amongst many other clever exponents of the art was Mooleyser of Rotterdam, of whom little is known beyond what can be learned from his signature inscribed on glasses such as a beaker dated 1685, with frolicking drinkers and vine-stems, at South Kensington.

For rendering light and shade in details of her subjects Anna Visscher sometimes employed, instead of lines, thickly clustered spots made by pressing the point of the diamond vertically into the surface of the glass. This procedure was taken up by a later artist, Frans Greenwood, an amateur, born of English parents at Rotterdam. All the dated glasses with his signature except the earliest are engraved entirely in stipple, that is, the designs are done in myriads of tiny dots hammered into the glass with a diamond point; the dated examples of this technique range from 1722 to 1755. For his subjects Greenwood for the most part drew upon engravings after genre and allegorical pictures by Dutch masters, which he freely adapted to his purposes. His technique had many imitators, none of whom was more skilful than David Wolff, born at Bois-le-Duc. His latest dated glass on record is of 1796; his subjects are mostly portraits, of the Stadholder William V and others, or children in allegorical compositions. This Dutch stipple engraving is in the nature of a *tour de force*, not to be criticized too seriously as a means of decoration; the cloudy film, almost as ethereal as breath on a cold pane, with which it overlays the surface, is a curiosity which begins to

have a meaning only when on close inspection it is found to be a picture. The technique was hardly possible except on the soft unresistant metal of lead glass, and many of the glasses employed to receive it, notably those with drawn stem (often cut in facets) chosen by Wolff, are almost certainly of English manufacture (it is known that there was a considerable export of glass to Holland from Newcastle-on-Tyne).

In England, as elsewhere in northern Europe, glass-blowing in the Middle Ages was a humble craft, making vessels for use only, in a metal strongly tinged with green, and carried on in woodland regions like the Weald of Surrey and Sussex, where a plentiful supply was at hand of timber and fern to burn for potash. It was only when fine glass began to come in quantities from Venice in Tudor times that any efforts were made to compete in quality with the imported wares by setting up a manufacture of the same order in England. Various ventures are recorded, such as a short-lived settlement of Venetians in London in the middle of the sixteenth century, and the introduction of glass-workers from Lorraine about twenty years later by John Carr or Carré of Antwerp. The Lorrainers migrated from their first adopted home in Sussex in pursuit of the requisite fuel to various other woodland districts such as the Forest of Dean, and thence northwards to the coalfields; their descendants, with names of French derivation such as Tyzack (compare p. 152) and Henzey or Ensell, originated the modern glass industries of Stourbridge and Newcastle-on-Tyne. Nothing certain is known of the products of these immigrant glass-makers until we come to a Venetian named Jacob Verzelini, whose memorial brass may be seen in the church at Downe, in Kent. Verzelini had lived in Antwerp, before at some date not established with certainty he came to London. In 1575 he was granted by Queen Elizabeth a licence for twenty-one years for making "drynkinge glasses such as be

accustomablie made in the towne of Morano ". There are several goblets bearing dates from 1577[1] to 1586, which have been plausibly attributed to Vérzelini. They have bowls ranging in shape from semi-oviform to a shallow inverted dome, and a hollow knop, variously formed, on the stem, shapes which differ in their proportions, as does the metal by its inferior, somewhat horny quality, from any known to have been made in Venice. One of these goblets has thin horizontal fillets of white enamel and a little gilding; otherwise the decoration of all four consists of engraving with a diamond point comprising inscriptions or initials amongst arabesques, petal-motives, and in one case a frieze of animals. Two of the glasses bear the motto of the Pewterers' Company of the City of London. In certain respects the designs are not unlike those on the *Humpen* made for William Smith of Nuremberg (see p. 149).

The year 1611 is a landmark in the history of the industry, as a patent was then granted for the construction of glass-furnaces to be fired with coal. Seven years later a monopoly of the glass manufacture in England was acquired by Admiral Sir Robert Mansell, who became controller of glasshouses all over the country. Although glass of the Venetian type of *cristallo* continued to be made in England, and as late as about 1670 there was a market in London for glass made to order in Venice in special shapes for English use, the introduction of coal fuelling prepared the way for a revolution which was to give English glass a world-wide supremacy. Coal had before this time been used spasmodically in Germany (compare p. 152), but it was in England that this new practice first brought about an effective change in the quality of the metal produced. The use of coal instead of wood necessitated the substitution of covered for open

[1] This date is inscribed on a glass recorded for the first time and reproduced in *Apollo*, XXX, 1939, p. 86.

crucibles, to protect the glass mixture in the furnace from impurities; the loss of heat thus caused prompted the search for a more readily fusible metal, and this, in due course, led to the addition to the ingredients of a large proportion of lead as a flux; English lead glass, commonly known by a trade misnomer as "flint glass", was thereby brought to birth. The nature of the glass made at Greenwich after the Restoration, by Venetians working for the Duke of Buckingham, can only be conjectured (a well-known goblet diamond-engraved with the portraits of Charles II and Queen Catherine and the Royal Oak, dated 1663, is now generally held to be Dutch); the factory was probably occupied chiefly in making mirror-plates. We first arrive at certainty with the advent of George Ravenscroft, who in 1673 set up a glasshouse in the Savoy, in London, and a year later opened another under an agreement with the Glass Sellers' Company at Henley-on-Thames; he engaged to assist him an Italian from Altare (compare p. 145). Experiments conducted by Ravenscroft resulted in the improvement of the metal, obviating a liability to "crissel" or decay, by introducing lead into its composition; the glass of lead ("flint glass") which he invented about 1676 or earlier, has since been the standard English type for table wares.

Like the cream-coloured ware of Wedgwood (see p. 47) English lead glass was destined to capture the markets of Europe and to force imitation of it on competitors abroad. It owes its supreme beauty as a material to its brilliance, and its unrivalled aptitude for reflecting and refracting rays of light; its weight made for stability and dignity of outline, and the sound craftsmanship of English glass at its best atones for any lack of the fancifulness or elaboration of finish belonging to the more ambitious performances of Venice and Bohemia.

Advertisements tell us that Ravenscroft introduced

the use of an applied glass seal with a raven's head in relief as the mark of his productions. Several specimens still exist—jugs, basins, and drinking-glasses—which bear this seal and give us some idea of the nature of his wares. In nearly every case the articles so marked are of the new metal containing lead. In shape some of these resemble earthenware vessels of the time, whilst one is a goblet similar in form to a German *Roemer*, with raspberry "prunts" on the stem. Vertical ribs, sometimes pinched with the tongs into a diamond trellis in relief, recur as motives of decoration. From these earliest products in lead glass it is possible, with the help of a few dated or datable examples, to trace the development of shape and design down to the nineteenth century.

Fig. 16.—Early English wine-glass (Chequers, Bucks.)

The English glass made in the new "metal" in the period about the turn of the century continues to show clear traces of Venetian influence in shape and decoration. Goblets often of imposing size have mostly a straight-sided bowl rounded at the base, resting on a well-proportioned stem with a knop, or perhaps two, above a baluster. The knops may be lobed and the bowl surrounded by gadrooning in the lower part or with nipped trelliswork (fig. 16). Threads trailed on in loops also occur, and all these features can likewise be seen in candlesticks, tankards, and covered sweetmeat-glasses, and in the posset-pots with crown-like knob on the lid and spiny volute handles which recall similar pots bearing dates about 1700 in Bristol delft ware (compare p. 98). As time went on smaller wine-glasses

began to be made, with lighter knopped stem, or with straight stem formed in one piece with the bowl, which is drawn out downwards like a funnel (fig. 17). An innovation consisting of a shouldered stem of square section (sometimes incorrectly called a "Silesian" stem), occasionally moulded with the inscription "God save the King", had its prototype in Hesse; its introduction is doubtless traceable to the arrival in England of German craftsmen as one of the consequences of the Treaty of Utrecht (1713), though the case of Mäuerl already mentioned (p. 152) shows that such immigration was then not without precedent. Of greater moment was the importation of Bohemian engraved glass and at the same time, by German practitioners, of the art of decorative glass-engraving as distinct from the simple shaping and bevelling known to the mirror-manufacturers of the Restoration period. The evolution of shape in the wine-glass at this stage shows the baluster or knopped stem giving way to a perfectly plain column joined with an abrupt angle to the base of the bowl, which takes the form of a trumpet-mouth, a thistle or a bucket. Engraving led on to cutting, and in 1727 we find the first advertisement of "curious cut glass" for sale in London; in 1739 an advertisement gives us definite evidence of an English glass-cutter named Jerom Johnson.

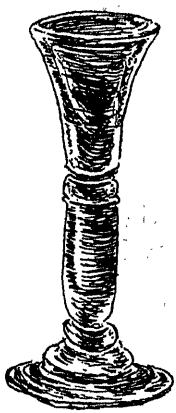


Fig. 17.—Cordial-glass, English (Victoria and Albert Museum)

Glass-cutting, the art in which English glass-manufacturers were soon to excel all others, imposing their fashions on foreign competitors, was peculiarly adapted to display the lustrous brilliance of the lead "metal". It received a great impetus from an entirely extraneous circumstance; in 1745, to raise funds for the war with

France, an Excise Act was passed by Parliament imposing a duty amongst other things on all the materials used in the manufacture of glass. The consequence of this was that the manufacturers found themselves forced to cheapen their wares by making them smaller in size and lighter—by reduction of the proportion of the heavy ingredient, lead—and at the same time to render them more attractive to buyers by a more extensive use of cut decoration (Plate XVI, c). This decoration first took the form chiefly of a diamond-pattern applied to the stem of a wine-glass, the lower part of a decanter, or the whole surface of a cruet-bottle or sugar-basin. It was further elaborated in time to scallops round rim or foot and shallow faceting in great variety, until we come to the hobnail and strawberry-diamond cutting of the beginning of the nineteenth century, followed in turn by the sharp and vulgar over-decoration of the Great Exhibition period. Cutting was used with great effect on chandeliers and table candelabra, on the shaft, arms, sconces, and prismatic lustres and drops. Splendid examples are the six great chandeliers in the Assembly Rooms at Bath, made for the rooms when they were opened in 1771, at the Whitefriars Glasshouse, London, for William Parker, dealer in cut glass, of Fleet Street.

Other means besides cutting and engraving were adopted by the English glass-makers after the passing of the 1745 Act, to make their wares more saleable; one of these was by colouring the "metal", as may be gathered from the mention of glass "of all colours" in advertisements of 1752 and later. Another was by the introduction of white enamel as a decoration, in the form especially of white twisted threads encased in the stems of wine-glasses; the earliest example on record inscribed with a date is of 1754. These opaque white twists had been preceded by hollow air-twists, which occur for instance in many of the well-known Jacobite glasses made after the rising of 1745 and

engraved with a rose and two buds and other emblems of the cause; air-twists were evolved from the cluster of bubbles sometimes pricked as decoration in the knops of the baluster stems of the early eighteenth century. In time twists of ruby, green and other colours were combined with white, until a new Excise Act, in 1777, dealt a fatal blow at this form of decoration by extending the duty from " flint glass " to " all enamel, stained or paste glass ", an act which gave fresh encouragement to the employment of cutting and tended to further reduction in size. White and other enamel colours were used also as pigments, notably on Newcastle-on-Tyne glass decorated by members of the Beilby family about 1760–70. Special mention must be made also of the coloured and opaque white glass made about this time at Bristol; Michael Edkins has a deserved reputation for the porcelain-like white glass bottles, vases and tea-caddies painted by him in gay colours with flowers, birds and occasionally Chinese figures. A word may be said also of the flasks, bottles and jugs with flecks or streaks of white or coloured enamel made in the factory carried on from 1788 to 1873 at Nailsea in Somerset. Its earlier wares were in black or green bottle-glass, which was less heavily taxed than lead glass; later, presumably after the repeal of the Excise Acts in 1845, similar decoration was applied to colourless lead glass.

Glass-making in Ireland followed a course parallel to that of English glass. Lead glass began to be made in Dublin about the beginning of the eighteenth century, but it was not till 1745 that the Irish manufacture became important. The duty leviable by the Excise Act of that year did not apply to Ireland, which was thus free to profit by the handicap imposed on the hitherto large importation of glass from Great Britain. In the main it may be said that the glass made at Dublin, Waterford, Cork and elsewhere, largely with the help of operatives introduced from England, was

similar in general character to contemporary English glass. Exemption from duty accounts for the continued production in Ireland of glass of fine quality, owing its brilliance to an undiminished proportion of lead content. Towards the end of the eighteenth century it became the custom in Ireland to mark with the name of the firm, in relief under the base, decanters blown into a mould. Certain other forms of the same period may also be taken as characteristically Irish, such as dessert-bowls on a detached stand cut with horizontal ridges, and boat-shaped fruit-dishes cut with scallops at the rim and a band of diamond or star pattern, and supported on a rather ungainly high foot heavily moulded either with gadroons or in the form of a square pedestal.

CHAPTER IV

Modern Glass

GLASS like other forms of applied art suffered from the æsthetic stagnation and confusion of aim which was the usual result of industrialization. All manner of technical improvements were introduced such as the use of steam as the motive power for the glass-cutter's wheel, but attention was focused on mechanical efficiency at the expense of artistic quality. In the first half of the nineteenth century the most interesting innovations took place in Bohemia. Coloured glass began to be made in imitation of natural stones, first opaque black and red like marble and porphyry, then in all kinds of colours in combination, streaked to simulate the markings of agate and onyx; these two new types were, in accordance with the fashion of the time, given names of Greek derivation, "hyalith" and "lithyalin", respectively. About 1830 there began, especially in the works at Haida and Windisch-Kamnitz, an immense production of glass with engraving deeply cut through a thin surface-staining of colour, especially ruby derived from gold (purple of Cassius). Favourite themes for the engraver were subjects relating to the chase and views of romantic scenery, often with titles in Gothic lettering. Bohemian glass of this kind enjoyed a great popularity and was imitated about 1850 by the manufacturers of Birmingham and Stourbridge. The staple English output, however, consisted of colourless cut-glass with patterns in ever more complicated and inappropriate elabora-

tion of those prevalent earlier in the century. Reaction came at last under the influence of John Ruskin, who was misled by the tasteless extravagances of his time into an entire failure to appreciate the æsthetic possibilities of cutting when used with restraint as a means of decorating glass. In 1859 Philip Webb designed for the use of William Morris glasses made at the Whitefriars Works in London which make their appeal solely by their functional form, being entirely undecorated; this reversion to simple blow shapes was maintained in the table glass made about twelve years later from designs by Morris himself and T. G. Jackson. The next movement was the reintroduction by Joseph Brocard of Paris, in the third quarter of the nineteenth century, of enamel painting inspired by the Syrian glass of the Middle Ages with which museums of industrial art, then newly-founded, were making the public acquainted. This lead was quickly followed by the firm of J. and L. Lobmeyr of Vienna and others in Germany; their productions were chiefly adaptations or copies of the native enamelled glass of the seventeenth century.

In all this, however, there was little trace of healthy invention. The Paris Exhibition of 1900 marks a step in advance, with several innovations then being brought to fruition. France again took the lead, with the decorative glass made by Émile Gallé of Nancy, in which floral motives were executed on vases mostly of massive build by grinding away a layer of colour differing from that underlying it (Gallé sometimes also adopted etching with hydrofluoric acid as an auxiliary to grinding). In this technique he was to some extent anticipated by John Northwood and other manufacturers of Stourbridge, who forty years earlier were making cameo glass in the antique style, including a copy of the Portland vase (see p. 132); Gallé was influenced, however, not so much by Roman as by Chinese glass, then a novelty in Europe, in which

the same method was adopted. But although his technique recalls the Chinese, Gallé was entirely original in his designs. It may be said here in parenthesis that Chinese glass, as recent research has proved, was of no importance until the seventeenth century; before that time its use was limited to small moulded articles such as the amulets found in graves of the Sung period, and it was not until the reign of Ch'ien Lung (1736–95) that the wheel-cutting of dichromatic or polychrome glass was adopted, as in the snuff-bottles to be seen in most museums of Oriental art.

America in the eighteenth and nineteenth centuries had its glass-works on English lines, such as those of Sandwich, New Jersey, or producing amongst the immigrants in Pennsylvania enamelled glass of the German type. About 1900 a new departure was made by Louis Tiffany, of New York, who discovered a method of producing an iridescent metallic sheen on the surface of his vases by carefully controlled re-heating. In Germany at the same time Karl Köpping of Berlin was making vases blown in shapes of ethereal delicacy inspired by the forms of flowers, leaves and tendrils.

The last two decades have witnessed an expansion of glass design and technique, and an ever-widening application of the material to every kind of use such as was never before seen in so short a span of time. To enumerate all recent developments of glass as an art would here be quite impossible. A few only of the outstanding achievements must be mentioned.

In Bohemia and Germany developments have been chiefly in the direction of cutting and engraving. Starting from Neo-classical forms cut faceting has been taken up, at Haida and elsewhere, often with an effect of simple linear elegance. Deep engraving of figure-subjects in a tradition traceable to Gundelach and Spiller (see pp. 151, 153) has been done at Stuttgart by Wilhelm von Eiff and his associates and by Ena

Rottenberg and other artists working for J. & L. Lobmeyr of Vienna, and the daughter firm of Steinschönau, in Bohemia. The figure-engraving done by Richard Süssmuth at Penzig, in Silesia, sometimes on glass with one or more superficial coloured layers, is restrained within the limits of an austere linear stylization suggested by ancient Roman precedents. Bohemian technical traditions have been widely effective in other countries also. In America they are the basis of the productions of the Steuben Glassworks at Corning, New York, where an adapted Neo-classicism is dominant; but modern Swedish glass is the most remarkable offshoot from the same stock. In Sweden, artistic glass of the finest quality and in great variety of design has been made during the last twenty years, notably since 1917 in the works at Orrefors, near Kalmar (Plate XVI, D), and in the Kosta glasshouse, an eighteenth-century foundation. The artists who led this revival are Simon Gate and Edvard Hald. The engraving of the former tends to overspin the surface with formal designs peopled with small figures, of an airy elegance in keeping with the trend—again with a distinct savour of the neo-classical—which has recently dominated Swedish architecture and applied arts; Hald chooses by preference the nude figure, treated with the exuberance of the German baroque glass-engravers. The Swedish glassworks have also been making glass with little or no added decoration, owing its effect solely to the formal and luminous qualities of the material itself, or to studied grading of tone where the "metal" has been coloured. From Sweden Bohemian influences and technique have been passed on in turn to the English glass-works; this is apparent in the designs of Keith Murray, working for Stevens and Williams of Stourbridge, and in the productions of the Whitefriars factory of James Powell & Sons, removed in 1923 from its ancient site in London to Harrow. The fireproof table wares made at

Smethwick and Sunderland show a fine sense of form in their severely functional shapes.

In France there has been a great blossoming of the art since the beginning of the century. The path opened up by Émile Gallé has been followed by René Lalique, the champion of uncoloured glass, and François Décorchemont, who have specialized in decoration stamped or moulded in high relief, sometimes helped out with engraving, intended to display the beauties of glass as glass. The visual kinship of glass with rock crystal has inspired other French artists such as Aristide Colotte of Nancy to use it in great blocks for solid sculpture, brusquely carved so as to give the most effective play of reflected light. Maurice Marinot, working at Bar-sur-Seine, shows a preference for very massive glass blown in the swelling shapes he claims as characteristic of the blower's art; similarly heavy forms are chosen by Henri Navarre, who spangles his glass with metallic colours. Floral design in enamel applied in strong relief or etched with acid are amongst the distinctive productions of Paul Daum, of Nancy.

Venice has played a somewhat subordinate part in the modern movement. The revival of glass-blowing at Murano in 1838, fostered later by Antonio Salviati, produced at first nothing better than skilful but lifeless reproductions of the styles of the great age of Venetian glass-blowing, degenerating into vulgar and tasteless exhibitions of clever craftsmanship. In recent years, however, the essential qualities of blown glass and the peculiar beauties attainable with colouring oxides have been exploited by the firms of Venini and Barovier, in a manner more worthy of a city acknowledged in earlier times as the unrivalled mistress of the art.

INDEX

Q1

6.9.74.